COMPILATION OF DATA COLLECTED AND DERIVED FOR WATER YEARS 1980 AND 1981 FOR THE PURPOSE OF WATER-QUALITY MODELING OF THE LOWER OUACHITA RIVER AND SELECTED TRIBUTARIES, SOUTH-CENTRAL ARKANSAS

By James C. Petersen and E. E. Morris

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Little Rock, Arkansas

1984

UNITED STATES DEPARTMENT OF THE INTERIOR

WILLIAM P. CLARK, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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COMPILATION OF DATA COLLECTED AND DERIVED FOR WATER YEARS 1980 and 1981 FOR THE PURPOSE OF WATER-QUALITY MODELING OF THE LOWER OUACHITA RIVER AND SELECTED TRIBUTARIES, SOUTH-CENTRAL ARKANSAS

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ABSTRACT

This report presents water-quality, sediment oxygen demand, phytoplankton, periphyton, bacteria, instantaneous and mean-daily discharge, stream geometry, time of travel, reaeration data and other water quality collected on the lower Ouachita River (from just upstream of Little Missouri River to Lock and Dam 6), West Two Bayou, Smackover Creek, Haynes Creek and selected tributaries. The data were collected primarily between August 1980 and September 1981. Over 100 sites were sampled, but most were sampled only during two intensive sampling periods in mid-August of 1980 and mid-September of 1981. The water-quality data include measurements of pH, specific conductance, dissolved oxygen, water temperature, whole-water nitrogen species, total phosphorus, total orthophosphorus, dissolved chlorides, dissolved sulfate, ultimate biochemical oxygen demand and organic carbon. The phytoplankton and periphyton data include measurements of chlorophyll *a* and *b*, taxonomic identification, cell counts and weights. Limited precipitation data are also included. Maps and schematic diagrams of the lower Ouachita River, West Two Bayou, Smackover Creek and Haynes Creek drainage systems show the location of the data-collection sites within the area.

INTRODUCTION

Purpose and Scope

This report, prepared in cooperation with the Arkansas Department of Pollution Control and Ecology, contains the results of water-quality, biological and physical measurements of the lower Ouachita River and selected tributaries between August 1980 and September 1981. Data for lower Ouachita River, West Two Bayou, Smackover Creek, and Mill-Flat-Haynes Creeks were collected for subsequent modeling of water quality to determine waste-load allocations for the four stream systems. The data were appropriate for use in a one-dimensional, steady-state, stream water-quality model described by Bauer and others (1979). The model is based primarily upon the Streeter-Phelps (1925) oxygen-sag equation. In Arkansas, the upper White River (Terry and others, 1983) and the upper Illinois River basin (Terry and others, 1984) have recently been modeled using this model. Little Missouri River, Smackover Creek and the lower Ouachita River have been modeled previously based upon less intensive water-quality sampling (Reed and others, 1975).

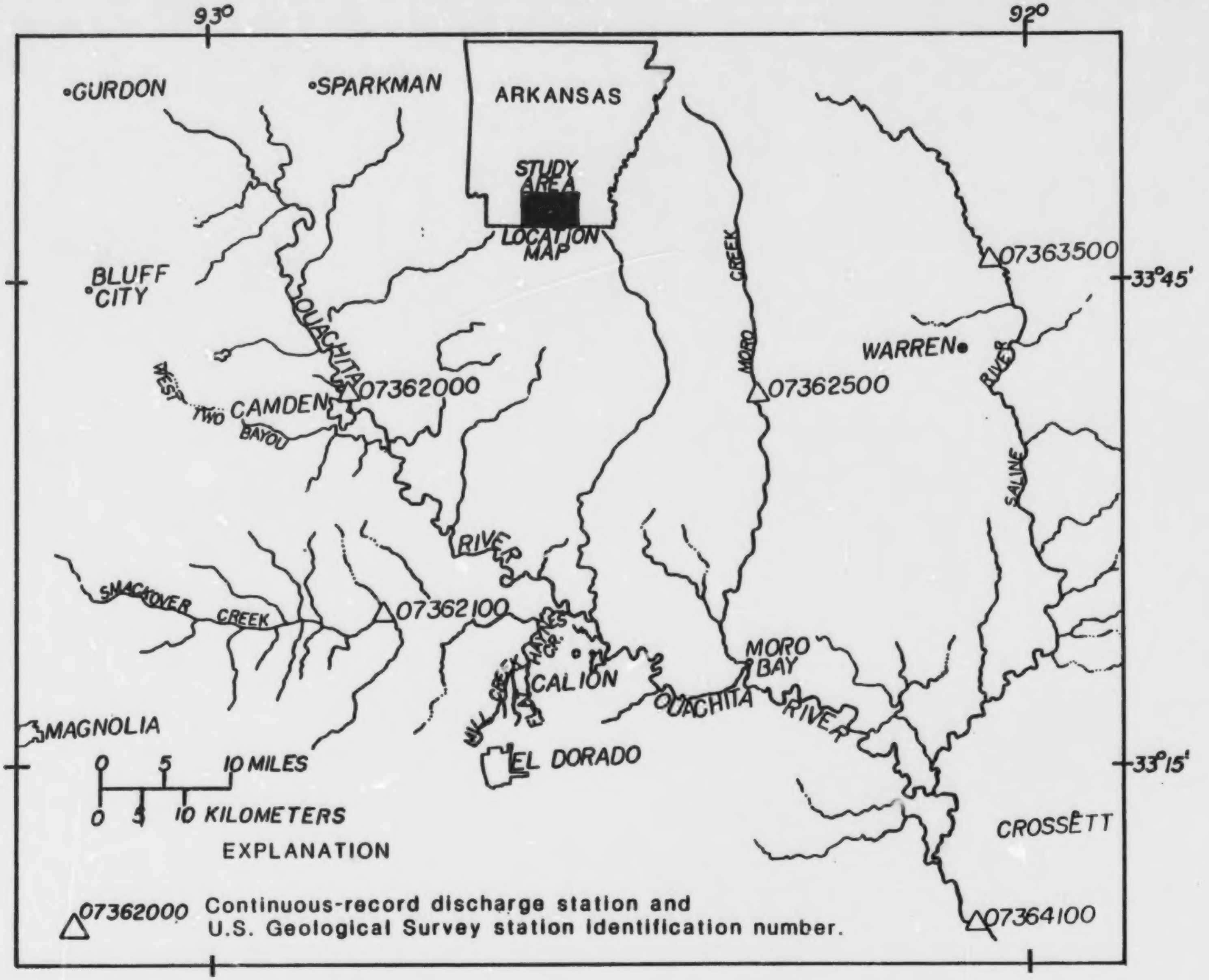
Water samples were collected at 107 sites during two intensive sampling periods—August 18 to 22, 1980 and September 14 to 18, 1981. Instantaneous discharge was concurrently measured at many of these sites. A few sites within the study area are stations operated by either the Arkansas Department of Pollution Control and Ecology or the U.S. Geological Survey as part of routine, continuing sampling networks. Some data collected at these sites between August 1980 and September 1981 are included in this report. For additional data collected by both agencies, at these network sites, refer to the Geological Survey's annual Water-Data Reports (U.S. Geological Survey, 1981, 1982).

Study-Area Description

The study area is located in south-central Arkansas (fig. 1). It includes West Two Bayou downstream from U.S. Highway 79; Smackover Creek downstream from Stephens; Mill Creek, Flat Creek and Haynes Creek downstream from El Dorado; and Ouachita River from the mouth of Little Missouri River downstream to Lock and Dam 6 near Felsenthal. Total drainage area at Lock and Dam 6 is 10,852 square miles (Yanchosek and Hines, 1979).

The study area is predominantly rural. It lies within an area of the state which is over 65 percent (Jackson and Mack, 1982) forest land. Most of the land within the study area is heavily forested lowlands and small hills. Largest cities near the area are Camden, El Dorado, Smackover, Stephens, Huttig, Strong and Norphlet.

Precipitation was less than normal in the study area during both sampling periods. August of 1980 was much drier than normal. Normal annual precipitation in or near the study area ranges from 49.36 inches at Magnolia to 53.70 inches at Crossett. Normal precipitation for August ranges from 3.02 inches at Magnolia to 4.08 inches at Crossett. In August 1980 precipitation ranged from 0.16 inches at Magnolia to 1.19 inches at Moro Bay. Normal precipitation for September ranges from 3.15 inches at El Dorado to 3.86 inches at Camden. In September 1981 precipitation ranged from 1.22 inches at El Dorado to 4.42 inches at Warren (U.S. Department of Commerce, 1981, 1982). Precipitation data for mid-August 1980 and mid-September 1981 are shown in tables 1 and 2.


93°
92°
33°45'
33°15'
GURDON
SPARKMAN
ARKANSAS
STUDY AREA
LOCATION MAP
BLUFF CITY
OUACHITA
07362000
CAMDEN
WEST TWO BAYOU
RIVER
MORO CREEK
07362500
07363500
WARREN
SALINE RIVER
SMACKOVER CREEK
07362100
HAYNES CR.
MILL CREEK
CALION
MORO BAY
OUACHITA RIVER
MAGNOLIA
EL DORADO
CROSSETT
07364100
0 5 10 MILES
0 5 10 KILOMETERS
EXPLANATION
07362000 Continuous-record discharge station and U.S. Geological Survey station identification number.

Base from U.S. Geological Survey
State base map, 1:500,000, 1967.

Figure 1.--Location of [illegible] Ouachita River and tributaries.

Table 1.--Precipitation data for August 16 through 22, 1980

[From U.S. Department of Commerce, 1980]

	Precipitation (inches)						
Location	Aug. 16	Aug. 17	Aug. 18	Aug. 19	Aug. 20	Aug. 21	Aug. 22
Gurdon	0.00	0.00	0.00	0.00	0.00	0.00	0.18
Sparkman	.00	.00	.00	.00	.00	.00	Trace
Bluff City	.00	.00	.00	.00	.00	.00	.00
Camden	.00	.00	.00	.00	.00	.00	.00
Warren	.00	.00	.00	.00	.00	.00	.00
Magnolia	.00	.00	.00	.00	.00	.00	.00
El Dorado	.00	.00	.00	.00	.00	.00	.00
Moro Bay Lock 8	.00	.00	.00	.00	.00	.00	.11
Crossett	.00	.00	.00	.00	.00	.00	.00

Table 2.--Precipitation data for September 12 through 18, 1981

[From U.S. Department of Commerce, 1981]

	Precipitation (inches)						
Location	Sept. 12	Sept. 13	Sept. 14	Sept. 15	Sept. 16	Sept. 17	Sept. 18
Gurdon	0.00	0.00	0.31	0.02	0.03	0.00	0.00
Sparkman	.00	.00	.48	.14	.02	.00	.00
Bluff City	.00	.00	.41	.21	.09	.00	.00
Warren	.00	.00	Trace	.33	.54	.00	.00
Magnolia	.00	.00	.00	.09	.06	.00	.00
El Dorado	.00	.00	Trace	.32	.00	.00	.00
Moro Bay Lock 8	.00	.00	.00	.77	.07	.00	.00
Crossett	.00	.00	.33	2.20	.20	.00	.00

DATA COLLECTION METHODS

Chemical and Physical Water Quality Measurements

Generally, one sample was collected at each site during each sampling period. Tributaries with zero flow were not sampled. At wastewater-treatment plants three samples were collected during each sampling period (daytime, midnight and dawn). Equal volumes from each of the three samples were then composited. At most sites, dissolved oxygen (DO) concentration and water temperature were measured at least three times (daytime, midnight and dawn) during a 24-hour period during each sampling period. Continuous-measurement DO and temperature monitors were used at some sites. Analyses were performed to measure specific conductance, pH, chemical oxygen demand, organic carbon, nitrogen species, orthophosphorus, total phosphorus, dissolved chloride, dissolved sulfate, dissolved solids, and suspended solids. Sampling and analyses were performed by the U.S. Geological Survey using procedures described by Guy and Norman (1970), Fishman and Brown (1972), Stevens and others (1975), Guy (1969), American Public Health Association and others (1975), the U.S. Geological Survey Handbook (1977) and Skougstad and others (1979).

Ultimate Carbonaceous Biochemical Oxygen Demand (CBODU) Measurements

Water collected during the 1981 sampling period was analyzed for carbonaceous biochemical oxygen demand (CBOD) according to methods described by Stamer and others (1983). To inhibit nitrification, 2-chloro-6 (trichloromethyl) pyridine was introduced into each sample. The observed decline in DO concentration in each sample was then assumed to be only due to the respiration of those organisms that consume carbonaceous material. DO concentrations in each sample were recorded initially and on day 1 of the test; thereafter, concentrations were recorded every other day for a period of 20 days.

The single-stage decay of carbonaceous material can be defined by the first order kinetics model expressed in the following equation:

$$L_t = L_o e^{-kt}, \qquad (1)$$

where

t = time (in days),

e = base of natural logarithms,

L_t = concentration of CBOD remaining after t days, (milligrams per liter),

L_o = initial concentration of CBOD at time zero, CBODU, (milligrams per liter), and

k = first-order CBOD decay rate, base e , (per day)

L_o and k are determined by defining a best-fit curve for the time-series DO data recorded during the laboratory CBOD tests. This fitting is accomplished using a computer program described by Jennings and Bauer (1976).

The fitting methods available in the program are:

1) the Thomas method (Thomas, 1950),
2) the least-squares method (Reed and Theriault, 1931), and
3) the nonlinear least-squares method (Barnwell, 1980).

Estimates of L_o and k produced by the fitting procedure with the smallest computed root mean-square error are considered most accurate.

Samples collected during the 1980 sampling period were analyzed similarly except that the nitrification inhibitor was not added to these samples. Graphical plots of the data typically showed a two-stage reaction. The second stage, resulting from nitrification, usually began 7 to 15 days into the test. The time-series dissolved-oxygen data recorded during the second-stage was not input to the computer program for curve fitting.

Streambed Oxygen Demand Measurements

Bed material samples were collected at selected sites by use of a shovel or a Petersen grab sampler. Samples were iced and transported to a laboratory. Streambed oxygen demand was determined using a method adapted from Nolan and Johnson (1979) and further described in Terry and others (1983) and Terry and others (1984).

Discharge Measurements

Instantaneous discharge measurements were made using procedures described by Buchanan and Somers (1969). In addition to the measurements made specifically for this study, mean-daily discharge and hourly instantaneous discharge records are available for several gaging stations operated by the U.S. Geological Survey within the study area or on tributaries near the study area.

Biological Measurements

Several biological measurements were made using methods described by Greeson and others (1977). Counts of total coliform and fecal coliform bacteria colonies were made from the 1980 water samples. In 1981 only fecal coliform bacterial colonies were counted. In 1980 and 1981 samples were collected at selected sites for determination of phytoplankton counts and chlorophyll *a* and *b* weight. Periphyton were collected on plastic strips suspended in the streams for approximately 15 days. Phytoplankton and periphyton were identified to the genus level.

Time of Travel, Stream Geometry and Reaeration Rates

Time of travel measurements using tracer dye were made on West Two Bayou, Mill Creek, Flat Creek, Haynes Creek, and Ouachita River between June 1980 and September 1981 (Lamb, 1983). Time of travel measurements can be used to estimate mean velocity which can then be used to estimate mean cross-sectional stream area when discharge is known:

$$\textit{Distance traveled} \div \textit{travel time} = \textit{mean velocity} \qquad (2)$$

$$\textit{Discharge} \div \textit{mean velocity} = \textit{mean cross-sectional area.} \qquad (3)$$

Measurements of stream geometry (width and depth) were made in association with the water-quality sampling at several locations within the study area.

Reaeration coefficients were measured for selected reaches of lower Ouachita River. The following description of techniques used is based upon methods described by Terry and others (1984). The measurement technique involves the use of low molecular-weight hydrocarbon gas and rhodamine WT dye as "tracers". This particular technique was first described by Rathbun and others (1975).

The hydrocarbon gas tracer technique is based on the observation that the rate coefficient for the tracer gas desorbing from water and the rate coefficient for oxygen being absorbed by the same water are related by a proportionality constant such that,

$$k_2 = k_T \theta \tag{4}$$

where,

k_2 = reaeration coefficient, (per day),

k_T = desorption coefficient for the hydrocarbon gas, (per day), and

θ = experimentally determined proportionality constant.

Values of θ for ethylene and propane were determined from a series of mixing-tank experiments in which k_2 and k_T were measured simultaneously (Rathbun and others, 1978). These values are 1.15 and 1.39 for ethylene and propane, respectively.

The rhodamine WT dye is used as a dispersion-dilution tracer. However, it is recognized that the dye is not completely conservative and provisions are built into the computation procedure to correct for dye losses.

The low molecular-weight hydrocarbon gas and rhodamine WT dye solution are injected into the stream as a short continuous injection. A continuous injection is necessary because the solubilities of ethylene and propane are so small that an instantaneous point-source injection would require a quantity of tracer solution too large to handle easily for most streams. The injection is continued only long enough to get sufficient tracer gas into the stream to obtain measurable concentrations downstream. Although plateau concentrations may be obtained at the first sampling site, only peak concentrations are usually obtained at sites farther downstream. Complete dye concentration-versus-time curves should be obtained and discharge measurements made in case dye loss corrections are necessary.

The gas and dye concentration-versus-time curves obtained at the beginning and end of a stream reach are used to define the gas desorption rate coefficient for that reach.

Details of the field procedures for measuring reaeration coefficients have been described by Rathbun and others (1975), Shultz and others (1976), Rathbun (1977), and Rathbun and others (1978). These publications are recommended to the interested reader.

There are two computational procedures for determining a gas desorption coefficient from gas and dye data collected at two or more sampling sites within a stream reach of interest. One is based on the peak gas concentration observed at each site and the other is based on the areas under the gas concentration-versus-time curves at each site.

The basic equation for determining the gas desorption coefficient using the peak method is:

$$k_T = [1/(t_d - t_u)] \ln [(C_T/C_D)_u / (C_T/C_D)_d] , \quad (5)$$

where,

k_T = desorption coefficient for the hydrocarbon gas, (per day),

t = time of arrival of peak gas concentration,

C_T = peak concentration of gas, (micrograms per liter), and

C_D = peak concentration of dispersion-dilution tracer, (micrograms per liter).

Subscripts d and u indicate downstream and upstream, respectively.

An assumption is made in equation 5 that the dispersion-dilution tracer is conservative. Under many stream conditions, rhodamine WT dye is not completely conservative. In such cases the following procedure can be used to account for possible dye losses:

$$Q_2A_2 = Q_3A_3J_3 = Q_4A_4J_4, \quad (6)$$

where,

Q = discharge, (cubic feet per second),

A = area under the dye concentration-versus-time curve, and

J = correction factor used to maintain equality.

The subscripts 2, 3, and 4 indicate sampling sites in a downstream direction. Complete mixing is required for this correction to be valid. Equation 5 then takes the following form between hypothetical sampling sites 3 and 4:

$$k_T = [1/(t_4 - t_3)] \ln [(C_{T_3}/C_{D_3}J_3) / (C_{T_4}/C_{D_4}J_4)], \quad (7)$$

where all variables are as previously defined.

The area method can be used if mixing is complete at each sampling site. This computation has the advantage that dye concentrations are not needed. The basic form of the equation is as follows:

$$k_T = [1/(\bar{t}_d - \bar{t}_u)] \ln (A_u/A_d), \quad (8)$$

where,

A = area under the gas concentration-versus-time curve, and

$\bar{t}$ = time of arrival of the centroid of the gas tracer mass.

The subscripts u and d indicate upstream and downstream, respectively.

For best results in defining k_T, the percent difference in peak gas concentrations from the upstream to the downstream sampling sites should be at least 20 percent greater than the percent difference in peak dye concentrations. If the percent difference in peak gas concentrations is significantly less than 20 percent greater than the percent difference in peak dye concentrations, then k_T will be biased by dispersion and may not reflect a true desorption coefficient.

After application of equations 5, 7, and/or 8, k_2 can be determined by substituting the resulting k_T value and the appropriate value of Θ into equation 4. These values of k_2 are representative of the flow conditions and water temperature during the gas and dye injection and sampling period.

Details on the derivation and application of equations 5-8 are given by Rathbun and others (1975) and Rathbun and Grant (1978). The interested reader should refer to these publications for further explanation.

Equation 5 was used for computations of k_T for the lower Ouachita River. Possible incomplete mixing and problems in defining complete dye concentration-versus-time curves made dye loss corrections to the peak method and/or area method computations questionable. Only ethylene was used as a gas tracer in these studies. The value of Θ in all of the k_2 computations is therefore 1.15.

WEST TWO BAYOU

Tables and figures containing data associated with West Two Bayou begin on page 17. Eleven sites were sampled on West Two Bayou and its tributaries (table 3). Figures 2 and 3 show the location of these sites.

Water-quality and discharge data for West Two Bayou are listed in tables 4 and 5. Biological data are listed in tables 6 and 7. Time of travel data are shown in figure 4. Additional stream geometry data are listed in table 8.

SMACKOVER CREEK

Tables and figures containing data associated with Smackover Creek begin on page 29. Thirty-six sites were sampled on Smackover Creek and its tributaries (table 9). This does not include sites upstream of site H17 on Haynes Creek. The location of these sites is shown in figures 5 and 6.

Mean-daily discharge at site SM25, Smackover Creek near Smackover, for water years 1980 and 1981 is listed in tables 10 and 11. Instantaneous discharge, plotted at 6-hour intervals, for site 25 during the 1980 and 1981 sampling period is shown in figure 7.

Water-quality and associated discharge data are listed in tables 12 and 13. Biological data are listed in tables 14, 15 and 16. Stream geometry data are listed in table 17.

MILL CREEK, FLAT CREEK, AND HAYNES CREEK

Tables and figures containing data asociated with Mill Creek, Flat Creek and Haynes Creek begin on page 57. Twenty-one sites were sampled on Mill Creek, Flat Creek, and Haynes Creek and their tributaries (table 18). Figures 8 and 9 show the location of these sites.

Water-quality and discharge data are shown in tables 19 and 20. Biological data are listed in tables 21, 22 and 23. Time of travel data are shown in figure 10. Additional stream geometry data are listed in table 24.

LOWER OUACHITA RIVER

Tables and figures containing data associated with lower Ouachita River begin on page 80. Forty-two sites were sampled on lower Ouachita River and its tributaries (table 25). This does not include sites upstream of site TB10 on West Two Bayou and upstream of site SM36 on Smackover Creek. Figures 11 and 12 show the location of the 42 sites. The river mile locations shown on figure 11 are based upon a river mileage of 254.1 (U.S. Geological Survey, 1982, p. 459) at site OU11 (07362000).

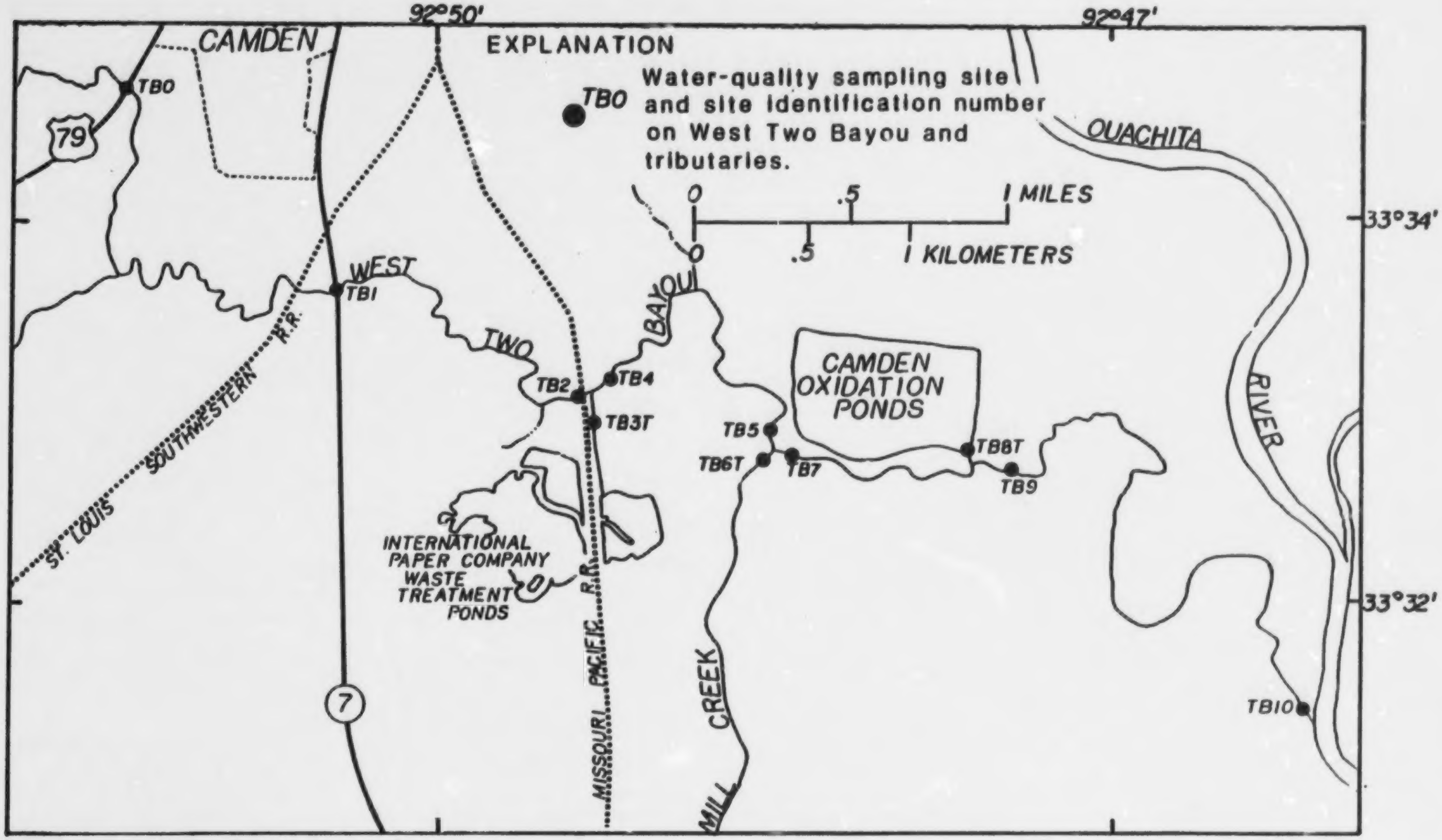
Mean-daily discharge at site OU11, Ouachita River at Camden; Moro Creek near Fordyce (07362500); Saline River near Rye (07363500); and Ouachita River near Arkansas-Louisiana State line (07364100); for water years 1980 and 1981 are shown in tables 26 through 33. The location of stations 07362500, 07363500 and 07364100 are shown in figures 1 and 11. Station 07364100 is approximately 0.1 mile downstream from site OU41. Figure 13 shows hourly discharge data, plotted at 6-hour intervals, for site OU11 during the 1980 sampling period.

Water-quality and associated discharge data are listed in tables 34 and 35. Biological data are listed in tables 36, 37 and 38.

Time of travel data are shown in figures 14 and 15. Additional stream geometry data is listed in table 39. Reaeration rate coefficients for selected reaches are listed in table 40.

Table 3.--List of West Two Bayou water-quality sampling sites

Site Name	Site Identification Number	USGS Station Number	Location	
			Latitude	Longitude
West Two Bayou at Camden, Arkansas	TB0	07362060	333402	0925021
West Two Bayou at Highway 7 bridge near Camden, Arkansas	TB1	073620605	333330	0924942
West Two Bayou upstream from International Paper effluent near Camden, Arkansas	TB2	07362061	333311	0924901
International Paper effluent near Camden, Arkansas	TB3T	073620612	333308	0924855
West Two Bayou downstream from International Paper effluent near Camden, Arkansas	TB4	073620615	333314	0924851
West Two Bayou upstream from Mill Creek near Camden, Arkansas	TB5	07362062	333306	0924820
Mill Creek at mouth near Camden, Arkansas	TB6T	073620622	333301	0924823
West Two Bayou downstream from Mill Creek near Camden, Arkansas	TB7	073620624	333302	0924815
Camden, Arkansas wastewater-treatment plant effluent	TB8T	07362063	333302	0924741
West Two Bayou downstream from Camden, Arkansas wastewater-treatment plant effluent	TB9	073620632	333300	0924734
West Two Bayou at mouth near Camden, Arkansas	TB10	073620638	333222	0924642


92°50'
92°47'
33°34'
33°32'
EXPLANATION
TB0 Water-quality sampling site and site identification number on West Two Bayou and tributaries.
0 .5 1 MILES
0 .5 1 KILOMETERS
CAMDEN
79
7
TB0
TB1
TB2
TB3T
TB4
TB5
TB6T
TB7
TB8T
TB9
TB10
WEST TWO BAYOU
CAMDEN OXIDATION PONDS
OUACHITA RIVER
INTERNATIONAL PAPER COMPANY WASTE TREATMENT PONDS
ST. LOUIS SOUTHWESTERN R.R.
MISSOURI PACIFIC R.R.
MILL CREEK

Base from U.S. Geological Survey
Camden, 1:24,000, 1971.

Figure 2.--Location of water-quality sampling sites on West Two Bayou and tributaries.

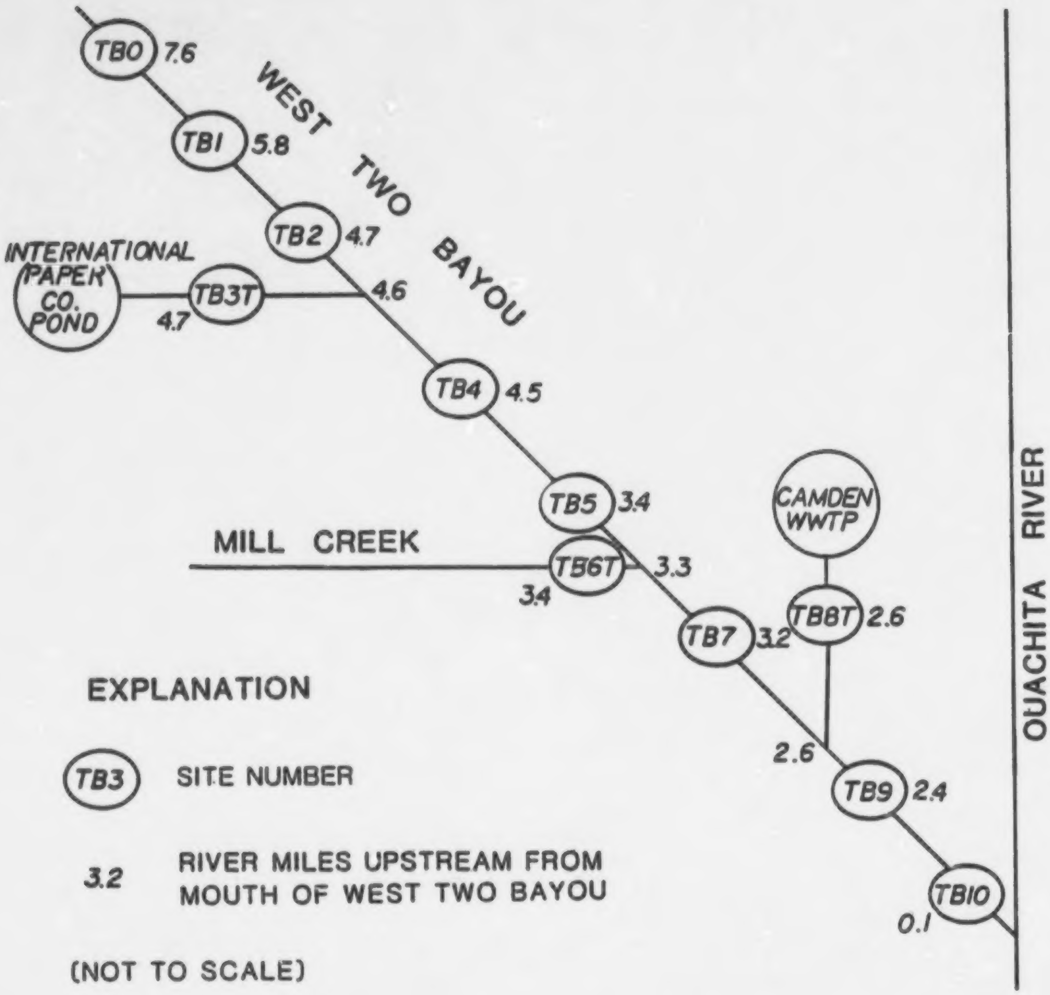

TB0 7.6
WEST TWO BAYOU
TB1 5.8
TB2 4.7
INTERNATIONAL PAPER CO. POND
TB3T
4.7
4.6
TB4 4.5
TB5 3.4
CAMDEN WWTP
MILL CREEK
TB6T
3.3
3.4
TB8T 2.6
TB7 3.2
OUACHITA RIVER
EXPLANATION
2.6
TB9 2.4
TB3 SITE NUMBER
3.2 RIVER MILES UPSTREAM FROM MOUTH OF WEST TWO BAYOU
TB10
0.1
(NOT TO SCALE)

Figure 3.--Schematic diagram showing location of water-quality sampling sites and tributaries on West Two Bayou.

Table 4.--West Two Bayou chemical and physical water-quality data

[Five digit numbers in parentheses are STORET parameter codes used for computer storage of data, E = estimated value]

SITE NUMBER	RIVER MILE	DATE OF SAMPLE	TIME	COLLECTING AGENCY	STREAMFLOW, INSTANTANEOUS (FT3/S) (00061)	PH (STANDARD UNITS) (00400)
TB0	7.6	80-08-21	—	USGS	0.00	—
		81-09-17	1740	do	3.6	6.1
TB1	5.8	80-08-21	1400	do	E.01	7.3
		81-09-17	1700	do	2.6	6.0
TB2	4.7	80-08-21	—	do	.00	—
		81-09-16	1630	do	6.1	6.8
TB3T	4.6	80-08-21	1500	do	12	8.0
		81-09-17	0700	do	17	8.0
TB4	4.5	80-08-21	1735	do	—	8.0
		81-09-16	1725	do	—	7.7
TB5	3.4	80-08-21	1555	do	15	6.5
		81-09-17	1730	do	—	7.5
TB6T	3.3	80-08-21	1710	do	E.15	7.8
		81-09-17	1500	do	1.9	6.8
TB7	3.2	80-08-21	1735	do	12	7.9
		81-09-17	1430	do	19	7.5
TB8T	2.6	80-08-22	0640	do	1.0	10.5
		80-08-22	1820	do	1.0	—
		80-08-22	2250	do	1.0	—
		81-09-17	0730	do	2.3	8.9
TB9	2.4	80-08-21	1835	do	—	8.0
		80-08-22	0650	do	14	—
		81-09-17	1020	do	28	7.6
TB10	0.1	80-08-20	1110	do	14	6.7
		81-09-16	1020	do	32	7.4

Table 4.--West Two Bayou chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (UMHOS) (00095)	SOLIDS, RESIDUE AT 180 DEG C DISSOLVED (MG/L) (70300)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 105 DEG C, SUSPENDED (MG/L) (00530)
TB0	81-09-17	—	48	13	<5.0	—
TB1	80-08-21	570	330	77	28	132
	81-09-17	53	40	3.5	<5.0	9
TB2	81-09-16	150	88	14	28	36
TB3T	80-08-21	1800	1380	76	480	36
	81-09-17	1620	1050	53	300	51
TB4	80-08-21	1900	1230	76	460	41
	81-09-16	1290	839	41	200	47
TB5	80-08-21	125	1360	79	460	26
	81-09-17	1270	813	40	200	45
TB6T	80-08-21	1800	62	3.5	12	36
	81-09-17	—	45	3.6	<5.0	8
TB7	80-08-21	1750	1200	76	460	20
	81-09-17	1180	740	43	150	37
TB8T	80-08-22	360	275	42	34	104
	81-09-17	363	249	>10	11	31
TB9	80-08-21	1600	1160	71	430	37
	81-09-17	—	699	40	130	40
TB10	80-08-20	1700	1190	75	420	30
	81-09-16	783	504	32	50	31

Table 4.—West Two Bayou chemical and physical water-quality data—Continued

SITE NUMBER	DATE OF SAMPLE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
TB0	81-09-17	0.92	0.080	0.010	0.030	0.050	0.070
TB1	80-08-21	2.1	.680	.010	.000	.150	.470
	81-09-17	.72	.120	.020	.100	.010	.070
TB2	81-09-16	.79	.160	.020	.230	.030	.080
TB3T	80-08-21	10	4.60	.060	.000	.820	.230
	81-09-17	20	1.10	.050	.000	.000	.300
TB4	80-08-21	8.4	4.60	.050	.000	.120	.240
	81-09-16	16	1.10	.050	.040	.040	.240
TB5	81-08-21	9.3	4.70	.050	.000	.270	.260
	81-09-17	7.1	9.90	.010	.030	—	.260
TB6T	80-08-21	1.3	.040	.010	.000	.010	.110
	81-09-17	.62	.080	.010	.000	.000	.040
TB7	80-08-21	10	4.80	.060	.000	1.20	.270
	81-09-17	6.4	8.60	.010	.020	.180	.200
TB8T	80-08-22	10	1.90	.000	.000	3.10	4.20
	81-09-17	9.0	3.00	.200	.020	.000	5.90
TB9	80-08-21	10	4.70	.070	.000	.400	.600
	81-09-17	6.5	7.50	.100	.020	.300	.760
TB10	80-08-20	8.8	4.20	.000	.000	.280	.660
	81-09-16	5.0	5.00	.080	.030	.300	.580

Table 4.--West Two Bayou chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L) (00320)	DEOXYGE-NATION CARBON K1 TO BASE E /DAY AT 20 DEG C (82133)	STREAMBED OXYGEN DEMAND [(G/M2)/DAY AT 20 DEG C]
TB0	81-09-17	—	—	31	3.2	0.08	—
TB1	80-08-21	—	—	120	42	.14	—
	80-09-19	—	—	—	—	—	1.5
	81-09-17	—	—	55	4.4	.09	.5
TB2	81-09-16	—	—	50	4.0	.10	—
TB3T	80-08-21	7.9	58	420	76	.05	—
	81-09-17	35	120	300	35	.07	—
TB4	80-08-21	—	—	420	33	.11	—
	81-09-16	—	—	250	52	.04	—
TB5	80-08-21	—	—	400	72	.08	—
	81-09-17	—	—	250	56	.03	—
TB6T	80-08-21	—	—	28	3.9	.34	—
	81-09-17	—	—	35	4.5	.12	—
TB7	80-08-21	—	—	390	24	.34	—
	80-09-19	—	—	—	—	—	4.5
	81-09-17	—	—	240	>75	—	1.5
TB8T	80-08-22	—	—	180	87	.10	—
	81-09-17	—	—	150	26	.10	—
TB9	80-08-21	—	—	—	45	.16	—
	80-08-21	3.7	57	370	—	—	—
	80-09-18	—	—	—	—	—	2.5
	81-09-17	15	41	210	>77	—	2.2
TB10	80-08-20	1.4	85	350	>20	—	—
	81-09-16	3.3	75	170	15	.07	—

Table 5.--West Two Bayou temperature and dissolved oxygen data

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
TB0	81-09-17	1740	22.5	2.9	34
	81-09-18	0105	21.0	2.6	29
	81-09-18	0645	20.5	3.2	36
TB1	81-09-17	1700	21.0	4.0	45
	81-09-18	0050	20.0	3.9	43
	81-09-18	0625	19.0	4.3	46
TB2	81-09-16	1630	24.5	3.0	36
TB3T	81-09-16	1550	28.5	3.8	49
	81-09-16	2340	28.0	4.0	51
	81-09-17	0700	26.0	2.1	26
TB4	81-09-16	1725	27.5	2.7	34
TB5	80-08-21	1555	32.0	.4	5
	80-08-22	0615	25.0	.4	5
	81-09-17	1730	25.0	.3	4
TB6T	80-08-21	1710	29.5	3.4	45
	81-09-17	1500	21.0	6.5	74
TB7	80-08-21	1735	32.5	.4	5
	80-08-22	0630	25.0	.4	5
	81-09-17	1430	24.5	1.6	65
TB8T	80-08-22	0640	25.0	4.8	59
	80-08-22	1820	37.5	>20.0	>300
	80-08-22	2250	31.5	8.9	122
	81-09-16	1830	27.5	5.5	70
	81-09-17	0150	24.5	5.2	36
	81-09-17	0730	22.5	5.8	67
TB9	80-08-21	1835	33.0	.4	6
	80-08-22	0650	25.0	.6	7
	81-09-17	1020	23.0	1.7	20
TB10	80-08-20	1110	29.0	.3	4
	81-09-16	1020	25.0	.8	10

Table 6.--West Two Bayou biological data

[Five digit numbers in parentheses are STORET parameter codes used for computer storage of data, COLS. = colonies, 0.7 UM-MF = 0.7 micron membrane filter, K = plate count was outside ideal range]

SITE NUMBER	DATE OF SAMPLE	TIME	PHYTO-PLANKTON, TOTAL (CELLS /ML) (60050)	COLI-FORM, TOTAL, IMMED. (COLS./ 100 ML) (31501)	COLI-FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
TB1	80-08-21	1400	—	K200000	K5400
	81-09-17	1700	—	K4500	1100
TB2	81-09-16	1630	—	K28000	4400
TB3T	80-08-21	1500	—	K150	K20
	81-09-17	0700	—	2600	480
TB4	80-08-21	1735	—	1600	K20
	81-09-16	1725	—	4300	1500
TB5	80-08-21	1555	—	K450	K60
	81-09-17	1730	—	460	33
TB6T	80-08-21	1710	—	6600	17
	81-09-17	1500	—	K900	84
TB7	80-08-21	1735	—	K1000	K130
	81-09-17	1430	—	690	170
TB8T	80-08-22	0640	—	K100	<11
	81-09-17	0730	—	K1300	K1400
TB9	80-08-21	1835	—	K2200	K500
	81-09-17	1020	3000000	3300	580
TB10	80-08-20	1110	—	K600	K13
	81-09-16	1020	—	—	K2000

Table 7.—Phytoplankton taxonomy and densities for West Two Bayou at Site TB9

Scientific name	Common name	Cells/milliliter 81-09-17
Chlorophyta	Green algae	
.Chlorophyceae		
..Volvocales		
...Chlamydomonadaceae		
....*Chlamydomonas*		1,700
Chrysophyta		
.Bacillariophyceae	Diatoms	
..Centrales	Centric diatoms	
...Coscinodiscaceae		
....*Cyclotella*		5,100
Cyanophyta	Blue-green algae	
.Cyanophyceae		
..Hormogonales	Filamentous blue-greens	
...Oscillatoriaceae		
....*Oscillatoria*		[a]3,000,000

[a]Dominant organism, cell counts greater than or equal to 15 percent of total count for the site.

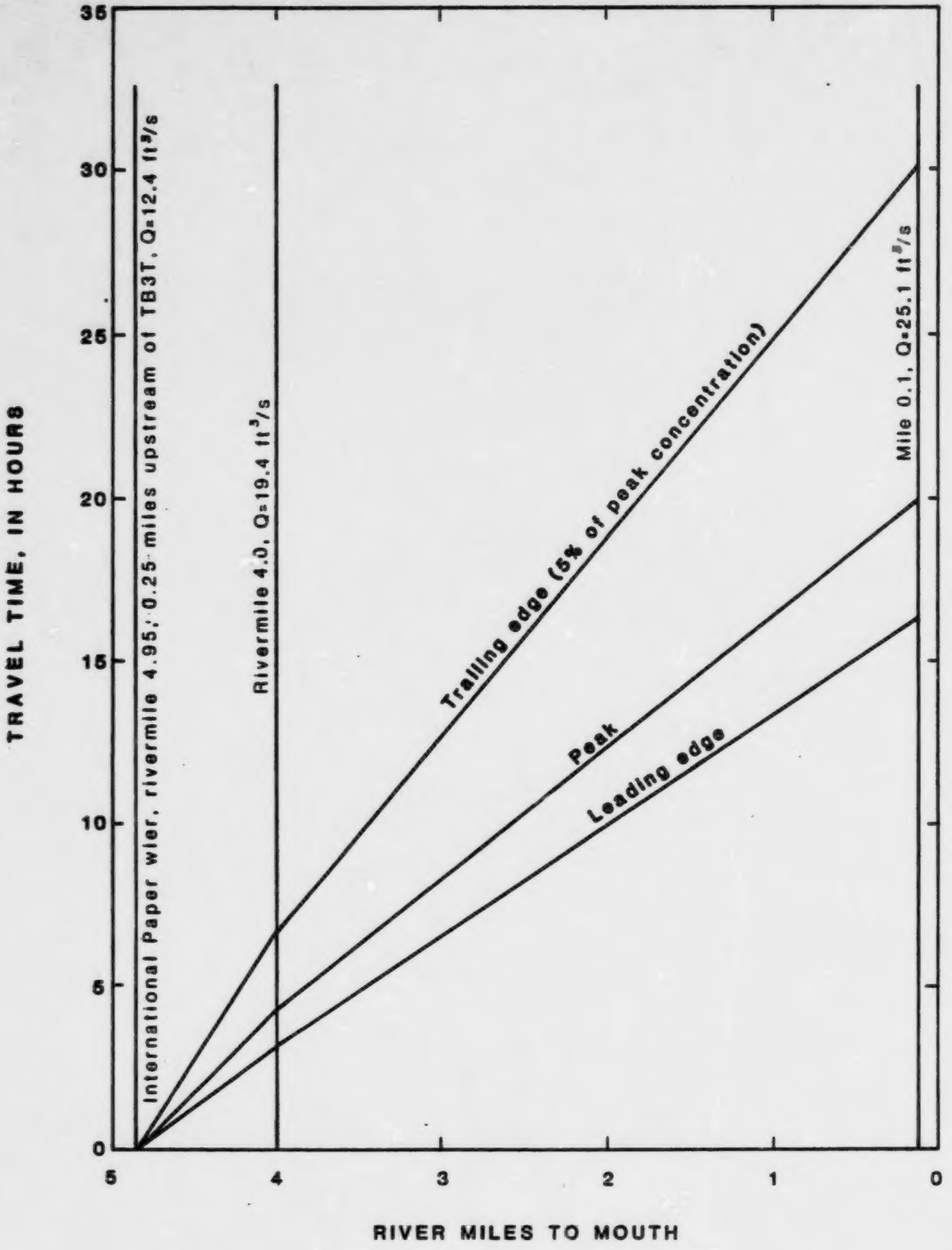


Figure 4.--Traveltime of tracer cloud in West Two Bayou and tributary. (Modified from Lamb, 1983).

Table 8.--West Two Bayou cross-section data

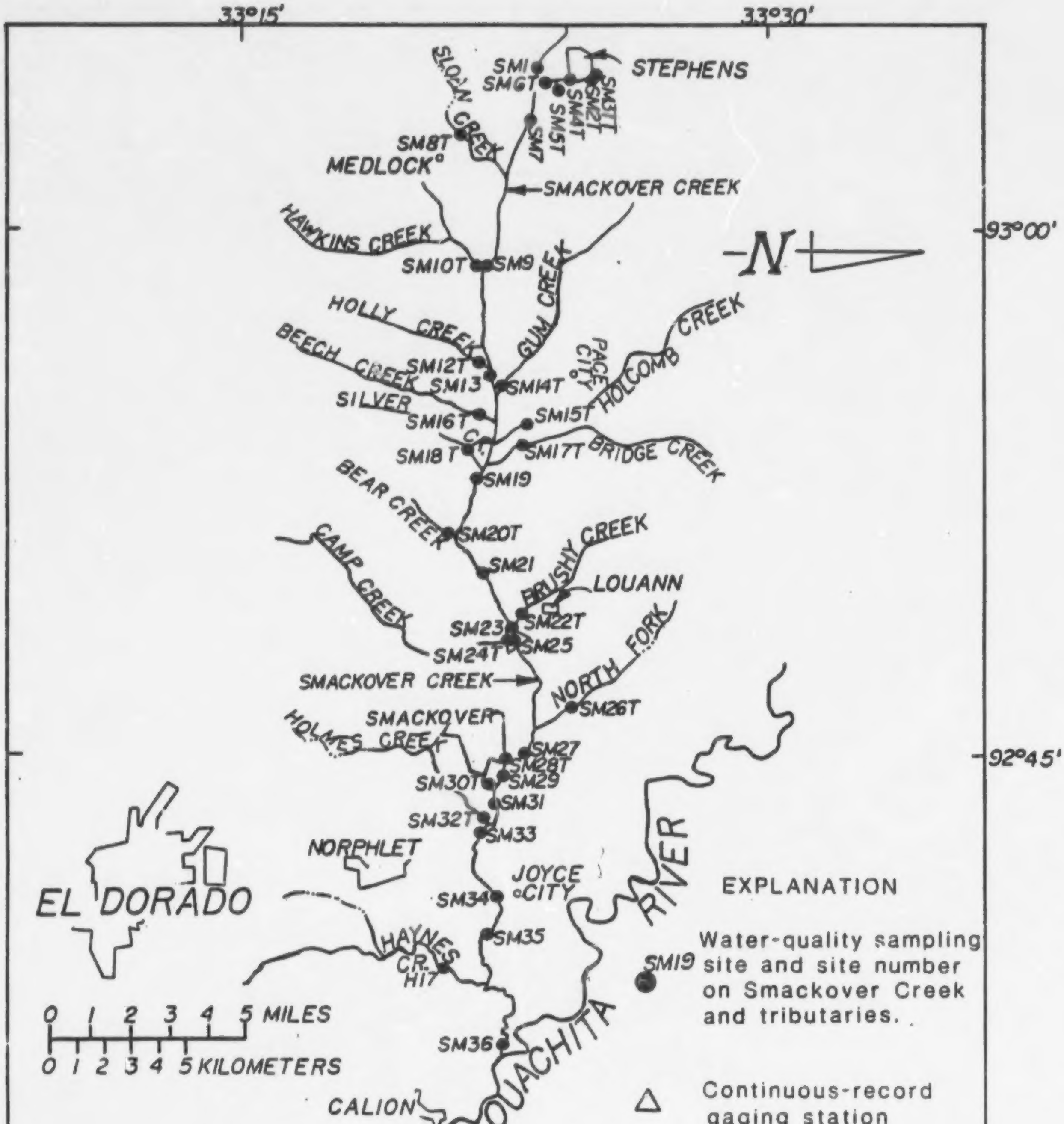
River mile	Date	Width (feet)	Average depth (feet)
5.9	80-08-21	30	2.0
5.7	80-08-21	50	3.0
5.6	80-08-21	50	10.0
4.5	80-08-21	40	3.5
4.4	80-08-21	30	4.0
3.4	80-08-21	23	1.8
3.3	80-08-21	36	1.8
3.2	80-08-21	19	1.7
3.1	80-08-21	26	2.0
2.4	80-08-21	32	2.7

Table 9.—List of Smackover Creek water-quality sampling sites

Site Name	Site Identification Number	USGS Station Number	Location Latitude	Location Longitude
Smackover Creek at Highway 57 bridge near Stephens, Arkansas	SM1	073620733	332331	0930413
Smackover Creek tributary at Stephens, Arkansas	SM2T	073620734	332451	0930356
Smackover Creek tribuary at Highway 79 bridge at Stephens, Arkansas	SM3TT	073620735	332450	0930400
Smackover Creek tributary upstream from Stephens, Arkansas wastewater-treatment plant	SM4T	073620737	332349	0930345
Stephens, Arkansas wastewater-treatment plant effluent	SM5T	073620738	332349	0930341
Smackover Creek tributary downstream from Stephens, Arkansas	SM6T	073620739	332346	0930340
Smackover Creek one mile southeast of Stephens, Arkansas	SM7	073620745	332317	0930241
Smackover Creek at Medlock,Arkansas	SM8T	07362075	332130	0930208
Smackover Creek upstream from Hawkins Creek near Pace City, Arkansas	SM9	073620755	332226	0925745
Hawkins Creek at mouth near Pace City, Arkansas	SM10T	073620775	332223	0925726
Holly Creek at mouth near Pace City, Arkansas	SM12T	073620788	332228	0925609
Smackover Creek downstream from Holly Creek near Pace City, Arkansas	SM13	07362079	332230	0925428
Gum Creek south of Pace City, Arkansas	SM14T	07362083	332243	0925428
Holcomb Creek southeast of Pace City, Arkansas	SM15T	07362084	332311	0925328
Beech Creek west of Watson Cemetary near Pace City, Arkansas	SM16T	07362085	332136	0925605
Bridge Creek 2.5 miles upstream from Smackover Creek near Pace City, Arkansas	SM17T	07362086	332311	0925248
Silver Creek east of Watson Cemetary near Pace City, Arkansas	SM18T	073620863	332132	0925227

Table 9.--List of Smackover Creek water-quality sampling sites--Continued

Site Name	Site Identification Number	USGS Station Number	Location Latitude	Location Longitude
Smackover Creek 0.4 miles downstream from Silver Creek near Pace City, Arkansas	SM19	073620864	332146	0925155
Bear Creek 0.2 miles upstream from Smackover Creek near Pace City, Arkansas	SM20T	073620865	332059	0925003
Smackover Creek southwest of Louann, Arkansas	SM21	073620866	332150	0924848
Brushy Creek south of Louann, Arkansas	SM22T	07362089	332251	0924751
Smackover Creek one mile southeast of Louann, Arkansas	SM23	073620892	332230	0924656
Camp Creek at mouth near Louann, Arkansas	SM24T	07362095	332227	0924638
Smackover Creek near Smackover, Arkansas	SM25	07362100	332233	0924637
North Fork northeast of Louann, Arkansas	SM26T	07362107	332401	0924438
Smackover Creek north of Smackover, Arkansas	SM27	07362110	332246	0924309
Smackover, Arkansas wastewater-treatment plant effluent	SM28T	07362125	332216	0924308
Smackover Creek northeast of Smackover, Arkansas	SM29	07362135	332212	0924243
Unnamed tributary downstream from Cross Refinery near Smackover, Arkansas	SM30T	07362145	332159	0924201
Smackover Creek two miles east of Smackover, Arkansas	SM31	07362150	332202	0924140
Holmes Creek northeast of Kenova, Arkansas	SM32T	07362170	332139	0924102
Smackover Creek east of Kenova, Arkansas	SM33	07362185	332134	0924054
Smackover Creek near Norphlet, Arkansas	SM34	07362200	332202	0923852
Smackover Creek 1.5 miles southeast of Joyce City, Arkansas	SM35	073622003	332136	0923733
Haynes Creek northwest of Shaw Brake near Norphlet, Arkansas	H17	07362220	332036	0923640
Smackover Creek at mouth near Calion, Arkansas	SM36	07362230	332205	0923206


33°15'
33°30'
93°00'
92°45'
-N-
STEPHENS
SM1
SM6T
SM3T
SM2T
SM4T
SM5T
SM7
SLOAN CREEK
SM8T
MEDLOCK
SMACKOVER CREEK
HAWKINS CREEK
SM10T
SM9
GUM CREEK
HOLLY CREEK
BEECH CREEK
SM12T
SM13
SM14T
PACE CITY
HOLCOMB CREEK
SILVER C.
SM16T
SM15T
SM18T
SM17T
BRIDGE CREEK
SM19
BEAR CREEK
SM20T
BRUSHY CREEK
SM21
LOUANN
CAMP CREEK
SM23
SM22T
SM24T
SM25
NORTH FORK
SMACKOVER CREEK
SM26T
SMACKOVER
HOLMES CREEK
SM27
SM28T
SM30T
SM29
SM31
SM32T
SM33
NORPHLET
EL DORADO
JOYCE CITY
SM34
SM35
HAYNES CR.
H17
OUACHITA RIVER
SM36
CALION
0 1 2 3 4 5 MILES
0 1 2 3 4 5 KILOMETERS
EXPLANATION
● SM19 Water-quality sampling site and site number on Smackover Creek and tributaries.
△ Continuous-record gaging station

Base from U.S. Geological Survey
El Dorado, Arkansas, Louisiana, 1977.

Figure 5.--Location of water-quality sampling sites on Smackover Creek and selected sites on tributaries.

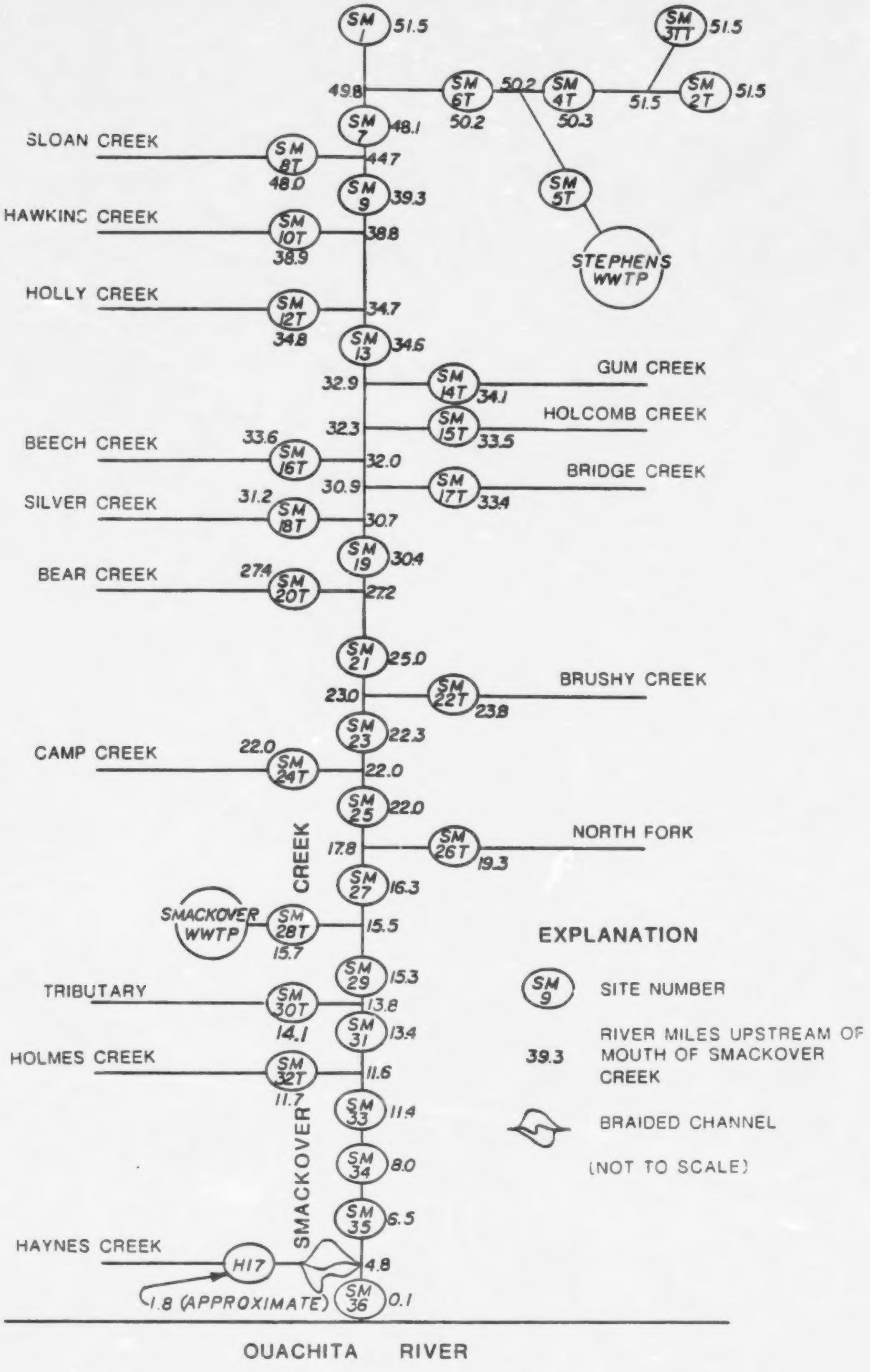

SM 1
51.5
49.8
SM 6T
50.2
50.2
SM 4T
50.3
51.5
SM 2T
51.5
SM 3TT
51.5
SM 5T
STEPHENS WWTP
SM 7
48.1
SLOAN CREEK
SM 8T
48.0
44.7
SM 9
39.3
HAWKINS CREEK
SM 10T
38.9
38.8
HOLLY CREEK
SM 12T
34.8
34.7
SM 13
34.6
32.9
SM 14T
34.1
GUM CREEK
32.3
SM 15T
33.5
HOLCOMB CREEK
BEECH CREEK
33.6
SM 16T
32.0
30.9
SM 17T
33.4
BRIDGE CREEK
SILVER CREEK
31.2
SM 18T
30.7
SM 19
30.4
BEAR CREEK
27.4
SM 20T
27.2
SM 21
25.0
23.0
SM 22T
23.8
BRUSHY CREEK
SM 23
22.3
CAMP CREEK
22.0
SM 24T
22.0
SM 25
22.0
17.8
SM 26T
19.3
NORTH FORK
SM 27
16.3
SMACKOVER WWTP
SM 28T
15.7
15.5
SM 29
15.3
TRIBUTARY
SM 30T
14.1
13.8
SM 31
13.4
HOLMES CREEK
SM 32T
11.7
11.6
SM 33
11.4
SM 34
8.0
SM 35
6.5
HAYNES CREEK
H17
4.8
1.8 (APPROXIMATE)
SM 36
0.1
SMACKOVER CREEK
OUACHITA RIVER
EXPLANATION
SM 9
SITE NUMBER
39.3
RIVER MILES UPSTREAM OF MOUTH OF SMACKOVER CREEK
BRAIDED CHANNEL
(NOT TO SCALE)

Figure 6.--Schematic diagram showing location of water-quality sampling sites and location of tributaries on Smackover Creek.

Table 10.--Mean-daily discharge for 1980 water year, in cubic feet per second, at site SM25, Smackover Creek near Smackover

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	146	168	283	803	221	2160	366	166	23	7.5	3.0
2	14	158	151	251	748	275	1680	578	139	22	6.7	2.7
3	13	114	139	306	646	273	1330	737	122	20	6.3	2.7
4	12	68	131	519	518	238	991	729	107	18	5.4	2.8
5	11	46	126	581	447	223	703	508	95	16	4.6	3.3
6	11	36	125	491	477	218	481	453	85	15	4.2	3.2
7	9.8	30	124	367	494	213	372	491	76	14	3.9	2.8
8	9.0	27	120	299	573	250	336	592	67	12	3.7	2.5
9	9.3	171	113	263	1600	251	305	496	66	11	3.4	2.3
10	8.2	547	105	233	2460	219	266	379	83	10	3.3	2.1
11	8.1	582	101	225	2630	193	254	269	89	9.9	3.1	2.1
12	8.1	498	111	235	2310	614	921	208	77	9.2	3.0	2.1
13	8.1	271	330	241	1960	1210	2290	418	63	8.8	2.6	1.9
14	8.0	132	577	218	1580	1310	4100	666	52	8.5	2.2	
15	7.7	97	611	195	1210	1200	4720	754	45	7.6	2.0	1.9
16	7.6	80	562	193	896	1020	3300	1140	39	7.2	2.0	1.8
17	8.5	69	444	240	683	2200	2280	1590	34	6.7	1.7	2.7
18	13	63	269	320	519	2800	1840	1700	31	6.3	1.6	3.7
19	20	57	201	335	414	2410	1630	1450	32	6.1	1.6	4.8
20	24	52	179	410	375	1820	1480	1200	41	5.8	1.7	6.8
21	18	95	172	1010	358	1720	1190	902	56	5.6	1.9	13
22	31	753	197	2050	330	1530	857	705	64	5.6	1.8	8.5
23	65	1180	448	3650	292	1140	545	1480	67	5.3	1.5	
24	69	1500	960	3990	262	1300	355	3160	68	4.8	1.3	5.3
25	54	1450	1330	2890	237	1750	382	2730	81	4.8	1.2	4.5
26	36	1140	1560	2110	213	2070	795	1810	63	4.7	1.2	4.2
27	26	901	1330	1670	196	1860	1000	1310	46	10	1.2	4.3
28	22	603	1100	1300	188	1630	746	871	36	11	1.1	6.0
29	97	288	861	948	188	1540	436	471	30	9.2	1.4	43
30	107	199	517	727	---	2190	285	253	26	19	1.4	143
31	91	---	327	758	---	2510	---	196	---	8.8	2.0	---

Table 11.--Mean-daily discharge for 1981 water year, in cubic feet per second, at site SM25, Smackover Creek near Smackover

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	175	41	75	34	78	239	300	31	376	48	75	8.5
2	109	31	64	34	149	481	340	36	320	55	49	9.1
3	52	25	55	34	175	534	370	36	425	70	33	9.8
4	29	22	49	35	160	452	420	36	814	110	27	14
5	21	20	47	34	125	395	450	34	1090	360	28	20
6	16	19	44	36	106	335	380	35	1970	482	58	16
7	13	18	40	61	97	263	225	37	2560	674	41	14
8	11	18	39	79	89	198	150	33	2610	404	34	14
9	10	17	69	87	84	165	130	41	2200	227	34	11
10	9.4	18	100	86	149	147	110	138	1500	134	24	8.5
11	8.7	17	110	70	317	136	100	242	1000	98	19	7.0
12	8.2	17	103	58	347	125	90	227	660	80	15	6.0
13	7.8	18	80	52	216	120	80	142	460	71	13	5.4
14	7.4	20	62	48	152	110	60	103	280	63	11	5.7
15	7.1	33	53	46	125	110	57	90	260	55	9.6	6.5
16	6.9	54	47	45	112	100	51	141	228	47	8.4	7.3
17	10	94	43	44	107	95	52	728	180	40	9.0	11
18	35	178	42	42	104	90	50	1160	160	35	39	11
19	59	216	41	41	101	90	47	2430	130	32	66	13
20	46	166	38	44	97	90	47	3040	110	30	43	11
21	34	112	36	62	91	90	49	2520	90	28	29	7.5
22	23	83	34	75	93	90	52	1790	80	25	21	5.8
23	17	72	34	82	113	90	64	1230	75	23	16	4.8
24	15	73	34	81	118	90	65	699	68	20	14	4.4
25	13	74	34	74	125	110	59	268	65	19	12	4.1
26	11	74	34	66	107	140	50	807	60	17	10	3.7
27	38	83	34	63	93	160	44	1440	55	17	8.8	3.5
28	132	92	33	60	84	160	37	2230	55	16	9.2	3.2
29	146	95	34	56	---	180	31	2800	50	27	8.4	3.0
30	104	87	36	54	---	231	29	2400	50	101	8.0	2.7
31	67	---	35	51	---	260	---	1900	---	107	7.5	---

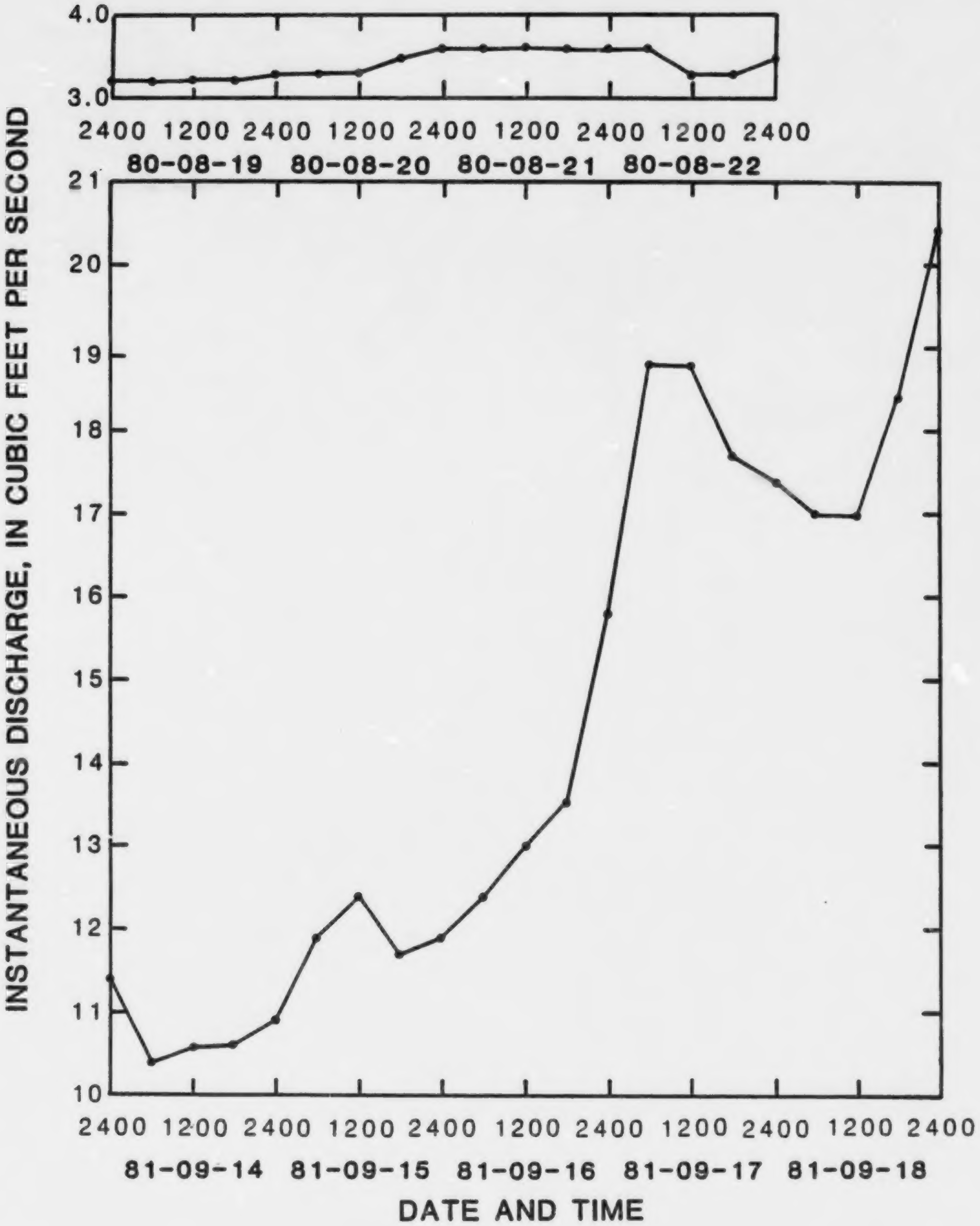


Figure 7.--Instantaneous discharge at site SM25, Smackover Creek near Smackover, during the 1980 and 1981 sampling periods.

Table 12.--Smackover Creek chemical and physical water-quality data

[Five digit numbers in parentheses are STORET parameter codes used for computer storage of data, E = estimated value]

SITE NUMBER	RIVER MILE	DATE OF SAMPLE	TIME	COLLECTING AGENCY	STREAMFLOW, INSTANTANEOUS (FT3/S) (00061)	PH (STANDARD UNITS (00400)
SM1	51.5	80-08-19	1530	USGS	0.00	—
		81-09-15	1445	do	.65	4.2
SM2T	49.8	80-08-19	1615	do	.00	—
		81-09-15	1530	do	.13	6.8
SM3TT	49.8	80-08-19	1635	do	.17	7.2
		81-09-15	1515	do	.21	6.3
SM4T	49.8	81-09-15	1615	do	—	6.4
SM5T	49.8	80-08-20	1345	do	.00	--
		81-09-15	1600	do	.00	—
SM6T	49.8	80-08-20	1345	do	E.04	6.7
		81-09-15	1700	do	.66	6.1
SM7	48.1	80-08-19	1730	do	.08	7.6
		81-09-17	1645	do	3.7	5.9
SM8T	44.7	80-08-19	1750	do	.34	7.1
		81-09-15	1400	do	2.4	6.9
SM9	39.3	80-08-20	1430	do	.26	7.0
		81-09-16	1130	do	4.6	6.2
SM10T	38.8	80-08-20	—	do	.00	--
		81-09-16	1330	do	.00	--
SM12T	34.7	80-08-19	—	do	.00	--
		81-09-16	1045	do	.00	—
SM13	34.6	80-08-19	1300	do	—	7.0
		80-08-20	0730	do	.15	—
		81-09-16	0900	do	2.8	5.8
SM14T	32.9	80-08-19	—	do	.00	—
		81-09-16	0840	do	.00	--
SM15T	33.5	80-08-19	—	do	.00	—
		81-09-16	0945	do	1.4	6.4
SM16T	32.0	80-08-20	—	do	.00	—
		81-09-16	0935	do	1.1	6.9
SM17T	30.9	80-08-19	—	do	.00	—
		81-09-16	1030	do	.70	5.9
SM18T	30.7	80-08-20	—	do	.00	--
		81-09-16	0910	do	.39	6.4
SM19	30.4	80-08-19	1500	do	E.01	7.1
		81-09-16	1530	do	14	5.7
SM20T	27.2	80-08-19	1535	do	—	7.4
		80-08-20	0640	do	.70	--
		81-09-16	1400	do	.83	7.0

Table 12.--Smackover Creek chemical and physical water-quality data--Continued

SITE NUMBER	RIVER MILE	DATE OF SAMPLE	TIME	COLLECTING AGENCY	STREAMFLOW, INSTANTANEOUS (FT3/S) (00061)	PH (STANDARD UNITS) (00400)
SM21	25.0	80-08-19	1630	USGS	.27	6.9
		81-09-16	1200	do	6.7	5.9
SM22T	23.0	80-08-20	--	do	0.00	--
		81-09-16	0635	do	1.5	6.4
SM24T	22.0	80-08-20	--	do	.00	--
		81-09-16	0625	do	.00	--
SM25	22.0	80-08-20	1710	do	1.7	6.7
		81-09-16	0620	do	7.0	6.1
SM26T	17.8	80-08-20	--	do	.00	--
		81-09-17	1000	do	.00	--
SM27	16.3	80-08-19	1150	ADPCE	--	6.6
		80-09-16	1125	do	--	6.7
		80-10-14	1330	do	--	6.0
		80-11-18	1225	do	--	6.1
		81-02-24	0800	do	--	5.8
		81-03-24	1115	do	--	5.9
		81-04-21	1045	do	--	6.3
		81-06-23	1045	do	--	6.1
		81-08-18	1140	do	--	6.2
		81-09-08	1115	do	--	6.7
		81-09-16	1700	USGS	--	6.5
SM28T	15.5	80-08-20	1545	do	<.01	--
		80-08-20	2340	do	<.01	--
		80-08-21	0600	do	<.01	10.7
		81-09-16	1730	do	E.20	--
		81-09-16	2200	do	E.20	--
		81-09-17	0515	do	E.20	6.8
SM29	15.3	80-08-22	1415	do	.17	6.8
		81-09-16	1800	do	--	6.9
SM30T	13.8	80-08-21	1530	do	.00	--
		81-09-17	1000	do	.00	--
SM31	13.4	81-09-17	1030	do	7.4	6.2
SM32T	11.6	80-08-21	1300	do	--	5.9
		80-08-21	2255	do	.82	--
		81-09-17	1130	do	1.4	6.8
SM33	11.4	80-08-21	1215	do	1.3	6.2
		81-09-16	1830	do	11	6.6

Table 12.--Smackover Creek chemical and physical water-quality data--Continued

SITE NUMBER	RIVER MILE	DATE OF SAMPLE	TIME	AGENCY	STREAM-FLOW, INSTANTANEOUS (FT3/S) (00061)	PH (STANDARD UNITS (00400)
SM34	8.0	80-08-20	1315	USGS	16	4.7
		81-09-14	1400	do	7.6	6.0
SM35	6.5	80-08-19	1000	do	2.1	4.3
		81-09-16	1240	do	8.6	5.5
H17	4.8	80-08-19	--	do	.00	--
		81-09-15	1130	do	.00	--
SM36	0.1	80-08-21	1625	do	--	7.5
		81-09-15	1130	do	--	7.0

Table 12.--Smackover Creek chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	SOLIDS, RESIDUE AT 180 DEG C DIS-SOLVED (MG/L) (70300)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 105 DEG C, SUS-PENDED (MG/L) (00530)
SM1	81-09-15	1420	806	460	<5.0	2
SM2T	81-09-15	2460	1360	760	100	34
SM3TT	80-08-19	2220	1200	580	110	4
	81-09-15	302	208	82	<5.0	14
SM4T	81-09-15	4090	2330	1300	60	71
SM6T	80-08-20	2300	1270	630	90	44
	81-09-15	4150	2330	1300	85	117
SM7	80-08-19	700	439	160	9.7	9
	81-09-17	200	1210	680	<5.0	3
SM8T	80-08-19	76	79	7.8	5.7	4
	81-09-15	76	90	22	<5.0	29
SM9	80-08-20	250	186	66	4.3	2
	81-09-16	14400	778	430	<5.0	6
SM13	80-08-19	395	215	86	.9	5
	81-09-16	22500	1260	680	<5.0	10
SM15T	81-09-16	45	114	40	<5.0	10
SM16T	81-09-16	170	116	30	<5.0	15
SM17T	81-09-16	682	376	200	<5.0	14
SM18T	81-09-16	182	132	55	<5.0	4
SM19	80-08-19	291	183	56	1.7	5
	81-09-16	2390	1320	740	<5.0	4
SM20T	80-08-19	81	96	7.4	1.6	1
	81-09-16	65	127	39	<5.0	3
SM21	80-08-19	312	189	67	1.9	2
	81-09-16	3550	1900	1200	<5.0	3
SM22T	81-09-16	841	520	290	<5.0	4
SM25	80-08-20	1100	693	350	3.3	4
	81-09-16	2070	1130	680	<5.0	8
SM27	80-08-19	1450	894	450	3.0	92
	80-09-16	1420	817	—	<1.0	22
	80-10-14	1410	—	420	13	11
	80-11-18	—	1180	—	7.0	16
	80-12-16	1450	812	470	—	4
	81-01-27	2090	1180	680	—	9
	81-02-24	1420	783	450	—	10
	81-03-24	1170	686	340	9.0	14
	81-04-21	1020	—	39	7.0	12

Table 12.--Smackover Creek chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (UMHOS) (00095)	SOLIDS, RESIDUE AT 180 DEG C DISSOLVED (MG/L) (70300)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 105 DEG C, SUSPENDED (MG/L) (00530)
SM27	81-05-26	—	634	360	3.0	34
	81-06-23	620	130	210	—	2
	81-07-21	118	719	390	7.0	17
	81-08-18	1380	743	400	—	12
	81-09-08	1500	—	470	<1.0	14
	81-09-16	1290	710	400	<5.0	3
SM28T	80-08-21	280	473	63	15	92
	81-09-17	592	409	56	E5.0	230
SM29	80-08-21	1750	956	480	9.2	3
	81-09-16	1250	660	350	<5.0	8
SM31	81-09-17	1530	878	500	<5.0	4
SM32T	80-08-21	17000	10100	5800	9.5	1
	81-09-17	1300	758	390	<5.0	2
SM33	80-08-21	6820	5160	2900	9.3	2
	81-09-16	2170	1150	660	<5.0	8
SM34	80-08-20	8500	4950	2600	17	9
	81-09-14	2970	1740	960	<5.0	7
SM35	80-08-19	8400	4930	2800	7.7	7
	81-09-16	4640	2550	1500	<5.0	9
SM36	80-08-21	290	149	53	21	2
	81-09-15	326	186	75	6.0	8

Table 12.--Smackover Creek chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOSPHORUS ORTHO, TOTAL (MG/L AS P) (70507)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
SM1	81-09-15	0.48	0.140	0.000	0.030	0.000	0.010
SM2T	81-09-15	.96	.140	.010	.050	.090	.160
SM3TT	80-08-19	1.9	.000	.010	.000	.290	.490
	81-09-15	1.1	.090	.010	.010	.040	.050
SM4T	81-09-15	3.3	4.70	.010	.020	.790	3.10
SM6T	80-08-20	1.1	.100	.020	.000	.030	.120
	81-09-15	4.8	4.50	.010	.040	.350	4.30
SM7	80-08-19	1.6	1.2	.010	.000	.110	.240
	81-09-17	.39	.710	.010	.150	.020	.040
SM8T	80-08-19	4.7	.050	.010	.730	.040	.070
	81-09-15	.80	.130	.010	.010	.040	.060
SM9	80-08-20	.74	.000	.010	.000	.040	.080
	81-09-16	.76	.110	.010	.130	.030	.020
SM13	80-08-19	.76	.100	.020	.000	.030	.070
	81-09-16	.61	.090	.000	.150	.040	.020
SM15T	81-09-16	1.1	.150	.010	.040	.110	.080
SM16T	81-09-16	.84	.110	.010	.010	.080	.060
SM17T	81-09-16	.62	.160	.010	.030	.050	.020
SM18T	81-09-16	.56	.110	.010	.040	.040	.020
SM19	80-08-19	.88	.120	.010	.000	.020	.070
	81-09-16	.64	.080	.010	.060	.040	.020
SM20T	80-08-19	1.4	.010	.010	.000	.040	.060
	81-09-16	.78	.110	.010	.000	.050	.030
SM21	80-08-19	.34	.020	.010	.000	.000	.050
	81-09-16	.62	.080	.000	.070	.000	.030
SM22T	81-09-16	.72	.100	.010	.040	.000	.020
SM25	80-08-20	1.1	.090	.020	.000	.010	.100
	81-09-16	.72	.100	.010	.130	.000	.020
SM27	80-08-19	2.2	.040	<.010	.010	—	.050
	80-09-16	—	—	.010	.020	—	.030
	80-10-14	—	.050	—	.280	.030	.010
	80-11-18	—	.100	—	.050	<.010	.040
	80-12-16	.83	.070	—	.090	<.010	.020
	81-01-27	1.1	.180	—	.050	<.010	.010
	81-02-24	1.3	.050	—	.060	<.010	.040
	81-03-24	—	.150	—	.160	<.010	.030
	81-04-21	.27	.030	—	.010	<.010	.040
	81-05-26	.84	.160	—	.150	.010	.040
	81-06-23	—	—	—	.510	.050	.100

Table 12.--Smackover Creek chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOSPHORUS ORTHO, TOTAL (MG/L AS P) (70507)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
SM27	81-07-21	—	.080	—	.200	.010	<.010
	81-08-18	1.1	.150	—	.060	<.010	.040
	81-09-08	—	.020	—	—	.010	.010
	81-09-16	.61	.070	.000	.010	.000	.020
SM28T	80-08-21	17	0.200	0.060	0.000	6.20	7.10
	81-09-17	16	.140	.010	.080	7.70	6.50
SM29	80-08-21	.87	.000	.010	.000	.000	.070
	81-09-16	1.4	.060	.010	.010	.200	.280
SM30	81-09-17	.69	.020	.000	.020	.010	.030
SM32T	80-08-21	.89	.510	.020	.520	.000	.020
	81-09-17	.64	.080	.000	.010	.000	.020
SM33	80-08-21	.93	.020	.010	.020	.000	.030
	81-09-16	.81	.140	.010	.120	.000	.020
SM34	80-08-20	.68	.420	.010	.110	.040	.040
	81-09-14	.99	.110	.000	.020	<.010	.010
SM35	80-08-19	.24	.520	.010	.040	.000	.030
	81-09-16	.71	.490	.010	.020	.050	.040
SM36	80-08-21	1.0	.000	.020	.520	.000	.040
	81-09-15	.71	.090	.010	.180	.010	.030

Table 12.--Smackover Creek chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L) (00320)	DEOXYGE-NATION CARBON K1 TO BASE E /DAY AT 20 DEG C (82133)	STREAMBED OXYGEN DEMAND [(G/M2)/DAY AT 20 DEG C]
SM1	81-09-15	0.50	4.0	180	1.7	0.16	--
SM2T	81-09-15	2.7	29	230	12	.10	--
SM3TT	80-08-19	--	--	120	6.7	.19	--
	81-09-15	--	--	84	4.4	.11	--
SM4T	80-09-19	--	--	--	--	--	1.4
	81-09-15	--	--	300	32	.20	2.6
SM6T	80-08-20	1.7	45	130	18	.31	--
	81-09-15	8.1	20	300	36	.17	--
SM7	80-08-19	--	--	77	12	.12	--
	81-09-17	.50	4.8	200	2.8	.12	--
SM8T	80-08-19	--	--	17	3.6	.22	--
	81-09-15	--	--	52	4.7	.18	--
SM9	80-08-20	--	--	33	3.9	.31	--
	81-09-16	.40	17	180	2.7	.16	--
SM13	80-08-19	.40	11	33	3.7	.21	--
	80-09-13	--	--	--	--	--	3.5
	81-09-16	.50	10	230	2.6	.13	2.4
SM15T	81-09-16	--	--	67	5.6	.12	--
SM16T	81-09-16	.60	23	78	4.0	.13	--
SM17T	81-09-16	1.3	18	140	4.1	.11	--
SM18T	81-09-16	--	--	89	2.9	.16	--
SM19	80-08-19	--	--	45	<9.0	--	--
	81-09-16	--	--	220	2.7	.17	--
SM20T	80-08-19	.20	4.7	9	3.6	.14	--
	81-09-16	.40	13	50	2.8	.16	--
SM21	80-08-19	.50	13	31	5.3	.19	--
	81-09-16	.20	9.8	270	1.9	.15	--
SM22T	81-09-16	.60	20	150	3.0	.12	--
SM25	80-08-20	--	--	43	11	.15	--
	81-09-16	1.1	15	210	2.1	.19	--
SM27	80-09-14	--	--	--	--	--	2.8
	81-09-16	.80	19	100	3.4	.30	.8
SM28T	80-08-21	18	91	420	--	--	--
	80-09-03	--	--	--	<95	--	--
	81-09-17	>40	62	290	87	.10	--

Table 12.--Smackover Creek chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L) (00320)	DEOXYGE-NATION CARBON K1 TO BASE E /DAY AT 20 DEG C (82133)	STREAMBED OXYGEN DEMAND [(G/M2)/DAY AT 20 DEG C]
SM29	80-08-21	--	--	31	6.0	.32	--
	81-09-16	--	--	180	7.1	.11	--
M31	81-09-17	.60	6.7	200	3.2	.09	--
M32T	80-08-21	--	--	110	3.5	.22	--
	81-09-17	--	--	210	2.7	.09	--
SM33	80-08-21	1.4	7.2	92	4.9	0.20	--
	81-09-16	1.1	16	200	2.6	.19	--
SM34	80-08-20	--	--	89	3.2	.37	--
	81-09-14	--	--	230	3.2	.14	--
SM35	80-08-19	.50	9.9	74	1.9	--	--
	80-09-17	--	--	--	--	--	0.7
	81-09-16	1.1	16	290	2.6	.18	.9
SM36	80-08-21	--	--	23	6.0	.17	--
	81-09-15	.70	5.3	77	3.5	.22	--

Table 13.—Smackover Creek temperature and dissolved oxygen data

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
SM1	81-09-15	1445	24.5	4.7	57
	81-09-15	2210	24.0	4.9	58
	81-09-16	0635	22.0	5.0	57
SM2T	81-09-15	1530	27.5	7.3	92
	81-09-15	2220	23.0	6.7	78
	81-09-16	0650	20.5	7.5	83
SM3TT	80-08-19	1635	34.0	6.8	97
	80-08-19	2310	26.0	5.9	73
	80-08-20	0650	24.0	7.1	85
	81-09-15	1515	25.5	6.2	76
	81-09-15	2235	24.0	6.2	74
	81-09-16	0655	22.0	3.5	40
SM4T	81-09-15	1615	25.0	3.4	41
	81-09-15	2250	30.0	2.5	33
	81-09-16	0640	22.0	2.8	32
SM6T	80-08-20	1345	27.0	6.3	80
	81-09-15	1700	24.0	3.9	46
	81-09-15	2255	30.0	2.8	37
	81-09-16	0645	22.0	2.9	33
SM7	80-08-19	1730	27.0	1.7	22
	80-08-19	2335	26.5	1.6	20
	80-08-20	0700	25.0	1.3	16
	81-09-17	1645	21.0	6.2	70
SM8T	80-08-19	1750	26.5	6.6	83
	80-08-19	2350	26.5	4.8	60
	80-08-20	0710	24.5	5.0	60
	81-09-15	1400	26.5	6.5	81
	81-09-15	2200	22.5	6.5	76
	81-09-16	0630	21.0	7.2	81
SM9	80-08-20	1430	28.0	3.3	42
	80-08-21	0020	26.0	3.6	44
	80-08-21	0620	25.0	2.8	34
	81-09-16	1130	22.5	4.7	55
	81-09-17	0715	19.0	4.9	53
SM13	80-08-19	1300	25.5	2.1	26
	80-08-20	0005	25.5	2.2	27
	80-08-20	0715	24.5	1.5	18
	81-09-16	0900	22.0	6.2	71
	81-09-17	1345	23.0	7.9	92
	81-09-17	1530	22.0	8.2	94

Table 13.--Smackover Creek temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATUR-ATION) (00301)
SM13	81-09-17	1735	23.0	8.9	103
	81-09-17	2242	19.0	7.0	75
	81-09-18	0700	16.5	6.1	63
	81-09-18	1300	18.5	8.0	86
	81-09-18	1510	21.5	8.4	95
SM15T	81-09-16	0945	22.0	5.2	60
	81-09-16	2150	21.0	4.9	55
	81-09-17	0630	19.0	5.2	56
SM16T	81-09-16	0935	21.0	5.3	60
	81-09-16	1515	21.5	6.5	69
	81-09-16	2145	21.0	6.1	69
SM17T	81-09-16	1030	22.0	6.5	75
SM18T	81-09-16	0910	21.5	4.9	56
	81-09-16	1510	24.0	6.2	74
	81-09-16	2140	22.0	5.9	68
SM19	80-08-19	1500	29.0	2.0	26
	80-08-19	2335	28.5	1.1	14
	80-08-20	0700	26.5	.3	4
	81-09-16	1530	23.5	6.3	74
	81-09-19	1200	16.5	8.3	85
	81-09-19	1300	17.0	8.2	85
	81-09-19	1400	17.0	8.3	86
	81-09-19	1500	17.0	8.3	86
	81-09-19	1600	17.0	8.3	86
	81-09-19	1700	17.0	8.3	86
	81-09-19	1800	17.0	8.2	85
	81-09-19	1900	17.0	8.1	84
	81-09-19	2000	17.0	8.0	83
	81-09-19	2100	17.0	7.9	82
	81-09-19	2200	17.0	7.8	81
	81-09-19	2300	16.5	7.7	79
	81-09-19	2400	16.5	7.7	79
SM20T	80-08-19	1535	25.0	7.0	85
	80-08-19	2300	25.0	7.9	96
	80-08-20	0640	23.0	7.0	81
	81-09-16	1400	22.0	7.7	89
SM21	80-08-19	1630	29.5	4.9	64
	80-08-19	2225	28.5	3.8	49
	80-08-20	0615	26.5	2.8	35
	81-09-16	1200	23.5	6.9	81

Table 13.--Smackover Creek temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
SM22T	81-09-16	0635	22.0	6.1	70
	81-09-16	1435	22.5	6.5	76
	81-09-16	2235	21.5	6.4	73
SM23	81-09-17	1325	23.0	6.1	71
	81-09-17	1510	22.5	6.6	77
	81-09-17	1800	22.0	6.9	79
	81-09-17	2220	20.5	5.9	66
	81-09-18	0645	19.0	6.6	71
	81-09-18	1140	19.5	7.0	76
	81-09-18	1450	20.0	7.3	80
SM25	80-08-20	1710	32.0	8.7	119
	80-08-21	0045	27.0	3.2	41
	80-08-21	0615	25.5	2.1	26
	81-09-16	0620	23.0	4.9	57
	81-09-16	1450	24.0	5.4	64
	81-09-16	2215	23.0	5.7	66
SM27	80-08-19	1150	29.0	3.9	50
	80-09-16	1125	28.0	2.5	--
	80-10-14	1330	18.0	6.2	65
	80-11-18	1225	10.0	8.7	77
	80-12-16	1457	9.0	9.7	84
	81-01-27	0915	8.0	--	--
	81-02-24	0800	9.0	8.8	76
	81-03-24	1115	14.0	6.3	61
	81-04-21	1045	22.0	--	--
	81-05-26	1115	20.0	5.9	64
	81-06-23	1045	28.0	5.0	63
	81-07-21	1118	28.0	--	--
	81-08-18	1140	26.0	4.0	49
	81-09-08	1115	24.0	5.5	65
	81-09-16	1700	24.5	6.3	76
	81-09-17	1005	22.0	4.3	49
	81-09-17	1300	23.0	5.4	63
	81-09-17	1455	24.0	4.6	55
	81-09-17	1815	23.0	4.7	55
	81-09-18	0630	21.0	4.9	55
	81-09-18	1130	20.5	5.2	58
	81-09-18	1330	21.5	5.4	60

Table 13.--Smackover Creek temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
SM28T	80-08-20	1545	33.0	13.8	19
	80-08-20	2340	27.0	.8	10
	80-08-21	0600	28.0	.8	10
	81-09-16	1730	29.0	12.0	156
	81-09-16	2200	26.5	6.9	86
	81-09-17	0515	23.5	3.8	45
SM29	80-08-21	1415	31.0	6.1	82
	80-08-21	2310	28.0	4.5	58
	80-08-22	0600	27.0	3.3	42
	81-09-16	1800	24.0	5.9	70
	81-09-18	1120	21.0	4.8	54
	81-09-18	1440	21.5	5.3	60
	81-09-18	1655	20.5	5.5	61
	81-09-18	1850	20.5	5.2	58
	81-09-18	2320	20.0	5.0	55
	81-09-19	0740	19.5	5.2	57
	81-09-19	1000	20.0	5.6	62
	81-09-19	1115	20.5	5.6	62
SM31	81-09-17	1030	22.5	4.5	52
	81-09-17	2200	22.5	5.3	62
	81-09-18	0645	20.5	4.2	47
SM32T	80-08-21	0540	27.0	4.0	51
	80-08-21	1300	28.0	8.5	109
	80-08-21	2255	29.0	5.6	73
	81-09-16	2230	23.5	5.9	69
	81-09-17	0600	20.0	5.7	63
SM33	80-08-21	1215	31.0	8.5	115
	80-08-21	2245	31.0	8.2	111
	80-08-22	0530	27.0	7.2	91
	81-09-16	1830	25.0	6.9	84
	81-09-16	2220	25.0	5.9	72
	81-09-17	0545	23.5	5.5	65
SM34	80-08-20	1315	33.0	6.4	89
	80-08-20	2320	31.0	7.1	96
	80-08-21	0550	28.0	5.6	73
	81-09-14	1400	26.5	7.7	96
	81-09-18	1040	20.5	7.3	81
	81-09-18	1420	23.0	7.4	86
	81-09-18	1635	24.0	8.4	100
	81-09-18	1815	24.0	8.1	96
	81-09-18	2240	22.0	7.4	85

Table 13.--Smackover Creek temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATUR-ATION) (00301)
SM34	81-09-19	0700	19.5	6.7	73
	81-09-19	0920	19.5	6.9	75
	81-09-19	1045	20.0	6.9	76
SM35	80-08-19	1000	31.0	6.1	82
	80-08-20	0100	32.0	8.2	11
	80-08-20	0615	30.0	5.9	79
	80-08-22	1645	33.0	7.6	106
	81-09-16	0655	23.0	5.7	66
	81-09-16	1240	26.5	7.1	89
	81-09-16	2300	25.5	6.6	80
	81-09-18	1050	22.0	5.7	66
	81-09-18	1400	24.0	6.7	80
	81-09-18	1625	24.0	6.7	80
	81-09-18	1825	23.5	7.0	82
	81-09-18	2300	21.5	6.5	74
	81-09-19	0710	19.5	6.1	66
	81-09-19	0930	20.0	6.2	68
	81-09-19	1050	20.5	6.5	72
SM36	80-08-21	1625	33.5	9.6	135
	81-09-15	0845	27.0	6.8	86
	81-09-15	1130	27.0	7.3	92

Table 14.--Smackover Creek biological data

[Five digit numbers in parenthese are STORET parameter codes used for computer storage of data, COLS. = colonies, 0.7 UM-MF = 0.7 micron membrane filter, K = plate count was outside ideal range]

SITE NUMBER	DATE OF SAMPLE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT (G/M2) (00572)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT (G/M2) (00573)	CHLOR-A PERI-PHYTON CHROMO GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
SM13	81-09-18	1200	14.3	29.5	65.3	30.7	233
SM23	81-09-18	1530	29.1	36.1	23.5	6.05	298
SM27	81-09-18	1330	31.6	37.5	9.14	1.33	646
SM29	81-09-19	1530	18.6	24.5	13.1	2.05	443

Table 14.--Smackover Creek biological data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	PHYTO-PLANK-TON, TOTAL (CELLS /ML)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	COLI-FORM, TOTAL, IMMED. (COLS./ 100 ML)	COLI-FORM FECAL, 0.7 UM-MF (COLS./ 100 ML)
SM1	81-09-15	1445	—	—	—	170	K18
SM2T	81-09-15	1530	—	—	—	K25	K30
SM3TT	80-08-19	1635	—	—	—	K1600	K200
	81-09-15	1515	—	—	—	—	K3000
SM6T	80-08-20	1340	—	—	—	K32000	>170
SM7	80-08-19	1710	—	—	—	160	28
	81-09-17	1645	—	—	—	K2200	380
SM8T	80-08-19	1750	—	—	—	920	130
	81-09-15	1400	—	—	—	480	K75
SM9	80-08-20	1430	—	—	—	7400	100
	81-09-16	1130	—	—	—	K800	170
SM13	80-08-19	1300	—	—	—	660	6
	81-09-16	0900	—	—	—	100	67
SM15T	81-09-16	0945	—	—	—	200	300
SM16T	81-09-16	0935	—	—	—	370	400
SM17T	81-09-16	1030	—	—	—	310	170
SM18T	81-09-16	0910	—	—	—	240	64
SM19	80-08-19	1500	—	—	—	1100	K420
	81-09-16	1530	—	—	—	130	K24
SM20T	80-08-19	1535	—	—	—	1000	10
	81-09-16	1400	41	—	—	580	41
SM21	80-08-19	1630	—	—	—	760	55
	81-09-16	1200	—	—	—	150	33
SM22T	81-09-16	0635	—	—	—	390	210
SM25	80-08-20	1710	—	—	—	K3000	28
	81-09-16	0620	2600	—	—	—	—
SM27	81-09-16	1700	3300	—	—	K75	35
SM28T	81-09-17	0515	—	—	—	240	200
SM29	80-08-21	1415	—	—	—	K200	140
	81-09-16	1800	38000	—	—	52	K200
SM31	81-09-17	1030	—	—	—	K970	K450
SM32T	80-08-21	1300	—	—	—	K120	5
	81-09-17	1130	—	—	—	35	18
SM33	80-08-21	1215	—	—	—	K120	11
	81-09-16	1830	—	—	—	58	80
SM34	80-08-20	1315	—	—	—	820	1
	81-09-14	1400	6400	8.00	2.46	K180	4
SM35	80-08-19	1000	—	—	—	900	1
	81-09-16	1240	—	—	—	100	14
SM36	80-08-21	1625	—	—	—	K450	17
	81-09-15	1130	—	—	—	170	280

Table 15.--Phytoplankton taxonomy and densities for Smackover Creek

Scientific name	Common name	cells/milliliter			
		SM20T 81-09-16	SM27 81-09-16	SM29 81-09-16	SM34 81-09-14
Chlorophyta	Green algae				
.Chlorophyceae					
..Chlorococcales					
...Oocystaceae					
....*Arkistrodesmus*		—	[a]640	1,000	160
....*Closteriopsis*		—	—	—	96
....*Dictyosphaerium*		—	60	—	[a]1,600
....*Gloeoactinium*		—	—	—	220
....*Kirchneriella*		—	120	230	—
...Scenesmaceae					
....*Crucigenia*		—	80	—	130
....*Scenedesmus*		—	40	230	900
..Volvocales					
...*Chlamydomonas*		—	180	1,000	710
..Zygnematales					
...Desmidiaceae	Placoderm desmids				
....*Cosmarium*		—	—	—	64
Chrysophyta	Yellow-green algae				
.Bacillariophyceae	Diatoms				
..Centrales	Centric diatoms				
...Coscinodiscaceae					
....*Cyclotella*		—	140	—	—
..Pennales	Pennate diatoms				
...Fragilariaceae					
....*Synedra*		—	—	—	32
...Naviculaceae	Naviculoids				
....*Frustulia*		[a]14	—	—	—
....*Navicula*		[a]14	20	120	32
...Nitzschiaceae					
....*Nitzschia*		—	—	—	32
.Chrysophyceae	Yellow-brown algae				
..Chrysomonadales					
...Mallomonadaceae					
....*Mallomonas*		—	20	—	—
....*Synura*		—	—	230	—
Cyanophyta	Blue-green algae				
.Cyanophyceae					
..Chroococcales	Coccoid blue-greens				
...Chroococcaleae					
....*Anacystis*		—	[a]1,600	[a]28,000	[a]1,400
..Hormogonales	Filamentous blue-greens				
...Rivulariaceae					
....*Raphidiopsis*		—	—	[a]5,800	—

Table 15.--Phytoplankton taxonomy and densities for Smackover Creek--Continued

		cells/milliliter			
Scientific name	Common name	SM20T 81-09-16	SM27 81-09-16	SM29 81-09-16	SM34 81-09-14
Euglenophyta	Euglenoids				
.Euglenophyceae					
..Euglenales					
...Euglenaceae					
....*Euglena*		---	100	820	770
....*Lepocinclis*		---	20	---	---
....*Trachelomonas*		[a]14	300	120	290
Pyrrophyta	Fire algae				
.Dinophyceae	Dinoflagellates				
..Gymnodiniales					
...Gymnodiniaceae					
....*Gymnodinium*		---	---	120	---

[a]Dominant organism, cell counts greater than or equal to 15 percent of total count for the site.

Table 16.—Periphyton taxa for Smackover Creek

[Date indicates date sampling strip was collected]

Scientific name	Common name	SM13 81-09-18	SM23 81-09-18	SM27 81-09-18	SM29 81-09-19
Chlorophyta	Green algae				
.Chlorophyceae					
..Chlorococcales					
...Oocystaceae					
....*Ankistrodesmus*		---	---	X	---
....*Dictyosphaerium*		---	---	*	---
....*Kirchneriella*		---	---	X	X
...Scenedesmaceae					
....*Scenedesmus*		---	---	X	X
..Ulotrichales					
...Coleochaeteaceae					
....*Coleochaete*		---	---	X	---
..Volvocales					
...Chlamydomadaceae					
....*Chlamydomonas*		---	---	---	X
..Zygnematales					
...Desmidiaceae	Placoderm desmids				
....*Closterium*		---	---	---	X
....*Cosmarium*		---	X	X	X
...Zygnemataceae					
....*Mougeotia*		---	---	X	---
....*Spirogyra*		X	X	---	---
Chrysophyta	Yellow-green algae				
.Bacillariophyceae	Diatoms				
..Centrales	Centric diatoms				
...Coscinodiscaceae					
....*Cyclotella*					
..Pennales	Pennate diatoms				
...Achnanthaceae					
....*Cocconeis*		X	---	---	---
...Cymbellaceae					
....*Cymbella*		---	---	---	X
...Eunotiaceae					
....*Eunotia*		---	X	X	X
...Fragilariaceae					
....*Synedra*		---	---	X	---
...Gomphonemataceae					
....*Gomphonema*		---	X	---	X
...Naviculaceae	Naviculoids				
....*Diploneis*		X	X	X	X
....*Frustulia*		---	X	---	X
....*Gyrosigma*		---	---	---	X
....*Navicula*		*	X	X	X
....*Pinnularia*		X	X	X	X
...Nitzschiaceae					
....*Nitzschia*		*	*	*	X

Table 16.—Periphyton taxa for Smackover Creek—Continued

Scientific name	Common name	SM13 81-09-18	SM23 81-09-18	SM27 81-09-18	SM29 81-09-19
...Surirellaceae					
....*Surirella*		X	X	X	X
Cyanophyta	Blue-green algae				
.Cyanophyceae					
..Chroococcales	Coccoid blue-greens				
...Chroococcaceae					
....*Anacystis*		X	X	X	X
..Hormogonales	Filamentous blue-greens				
...Nostocaceae					
....*Anabaena*		---	---	---	*
...Oscillatoriaceae					
....*Lyngbya*		---	*	---	---
....*Oscillatoria*		*	*	*	*
Euglenophyta	Euglenoids				
.Euglenophyceae					
..Euglenales					
...Euglenaceae					
....*Trachelomonas*		---	---	X	X
Pyrrophyta	Fire algae				
.Dinophyceae	Dinoflagellates				
..Peridiniales					
...Glenodiniaceae					
....*Glenodinium*		X	---	---	---

X Indicates organism present

* Indicates a dominant organism, estimated to be greater than 15 percent of total algal cells on sampling strip.

Table 17.--Smackover Creek cross-section data

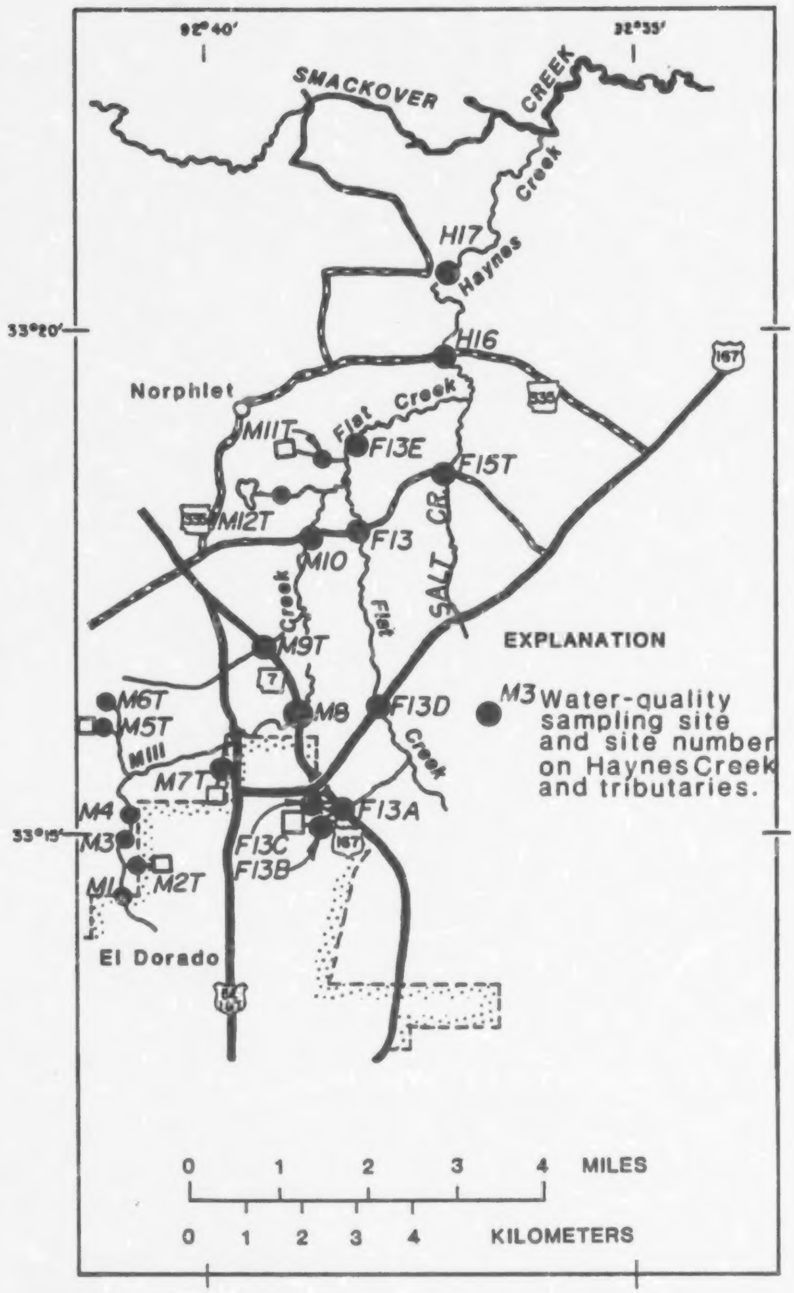
River mile	Date	Width (feet)	Average depth (feet)
51.3 (SM1)	81-09-18	30	1.5
50.3 (SM4T)	81-09-18	2.5	.4
48.1	80-08-19	17	1.9
48.1	81-09-18	20	1.0
39.8	80-08-20	15	1.0
38.3	80-08-20	15	1.0
34.8	80-08-20	15	1.0
34.5	80-08-20	15	1.0
34.5	81-09-18	12	.8
30.6	80-08-21	20	1.0
30.4	80-08-20	22	1.0
30.2	80-08-21	25	1.0
25.2	80-08-21	30	2.0
25.0	80-08-19	32	2.0
24.8	80-08-21	35	2.5
22.3	81-09-18	45	1.5
16.3	81-09-18	50	2.0
15.3	80-08-21	30	4.0
13.5	81-09-18	40	7.0
11.9	80-08-21	46	2.7
11.4	80-08-21	46	2.7
8.0	80-08-21	24	2.7
6.5	80-08-21	58	3.3
6.5	80-08-21	30	4.0
0.1	80-08-21	99	7.1

Table 18.—List of Mill Creek, Flat Creek and Haynes Creek water-quality sampling sites

Site Name	Site Identification Number	USGS Station Number	Location	
			Latitude	Longitude
Mill Creek upstream from El Dorado, Arkansas wastewater-treatment plant No. 5 effluent	M1	073622014	331430	0924057
El Dorado, Arkansas wastewater-treatment plant No. 5 effluent	M2T	073622015	331430	0924056
Mill Creek downstream from El Dorado, Arkansas wastewater-treatment plant No. 5 effluent	M3	073622016	331437	0924106
Mill Creek at El Dorado, Arkansas one mile upstream of Monsanto effluent	M4	073622017	331445	0924058
Monsanto chemical pond effluent near El Dorado, Arkansas	M5T	073622019	331544	0924116
Monsanto domestic wastewater effluent near El Dorado, Arkansas	M6T	073622018	331543	0924115
El Dorado, Arkansas wastewater-treatment plant No. 4 effluent	M7T	07362202	331528	0923950
Mill Creek at Highway 7 north of El Dorado, Arkansas	M8	073622021	331552	0923904
Mill Creek tributary at Highway 7 north of El Dorado, Arkansas	M9T	073622022	331551	0923905
Mill Creek at county road one mile south of Norphlet, Arkansas	M10	073622023	331736	0923859
McMillian Refinery effluent near Norphlet, Arkansas	M11T	073622024	331834	0923914
Norphlet, Arkansas wastewater-treatment plant effluent	M12T	073622025	331815	0923906
Flat Creek west of Sycamore Grove Church near Norphlet, Arkansas	F13	073622013	331740	0923818
Flat Creek tributary at Highway 7 at El Dorado, Arkansas	F13A	073622011	331452	0923830
Flat Creek tributary upstream from El Dorado, Arkansas wastewater-treatment plant No. 3 effluent	F13B	073622009	331452	0923837

Table 18.--List of Mill Creek, Flat Creek and Haynes Creek water-quality sampling sites--Continued

Site Name	Site Identification Number	USGS Station Number	Location	
			Latitude	Longitude
El Dorado, Arkansas wastewater-treatment plant No. 3 effluent	F13C	07362201	331448	0923842
Flat Creek at Highway 167 near El Dorado, Arkansas	F13D	073622012	331600	0923809
Flat Creek one mile downstream from Mill Creek near El Dorado, Arkansas	F13E	073622026	331842	0923806
Salt Creek northwest of Quinn, Arkansas	F15T	073622029	331818	0923725
Haynes Creek near Norphlet, Arkansas	H16	07362203	331924	0923723
Haynes Creek northwest of Shaw Brake near Norphlet, Arkansas	H17	07362220	332036	0923640


92°40'
32°35'
SMACKOVER CREEK
Haynes Creek
H17
H16
33°20'
Norphlet
Flat Creek
M11T
F13E
F15T
SALT CR.
335
M12T
F13
M10
Creek
Flat
M9T
7
EXPLANATION
M6T
M5T
M111
M8
F13D
Creek
M3 Water-quality sampling site and site number on Haynes Creek and tributaries.
M7T
M4
33°15'
M3
F13A
F13C
F13B
167
M2T
M1
El Dorado
0 1 2 3 4 MILES
0 1 2 3 4 KILOMETERS

Base from Arkansas Highway Department county map, Union County, 1976.

Figure 8.--Location of water-quality sampling sites on Mill Creek, Flat Creek, Haynes Creek and tributaries. (Modified from Lamb, 1983).

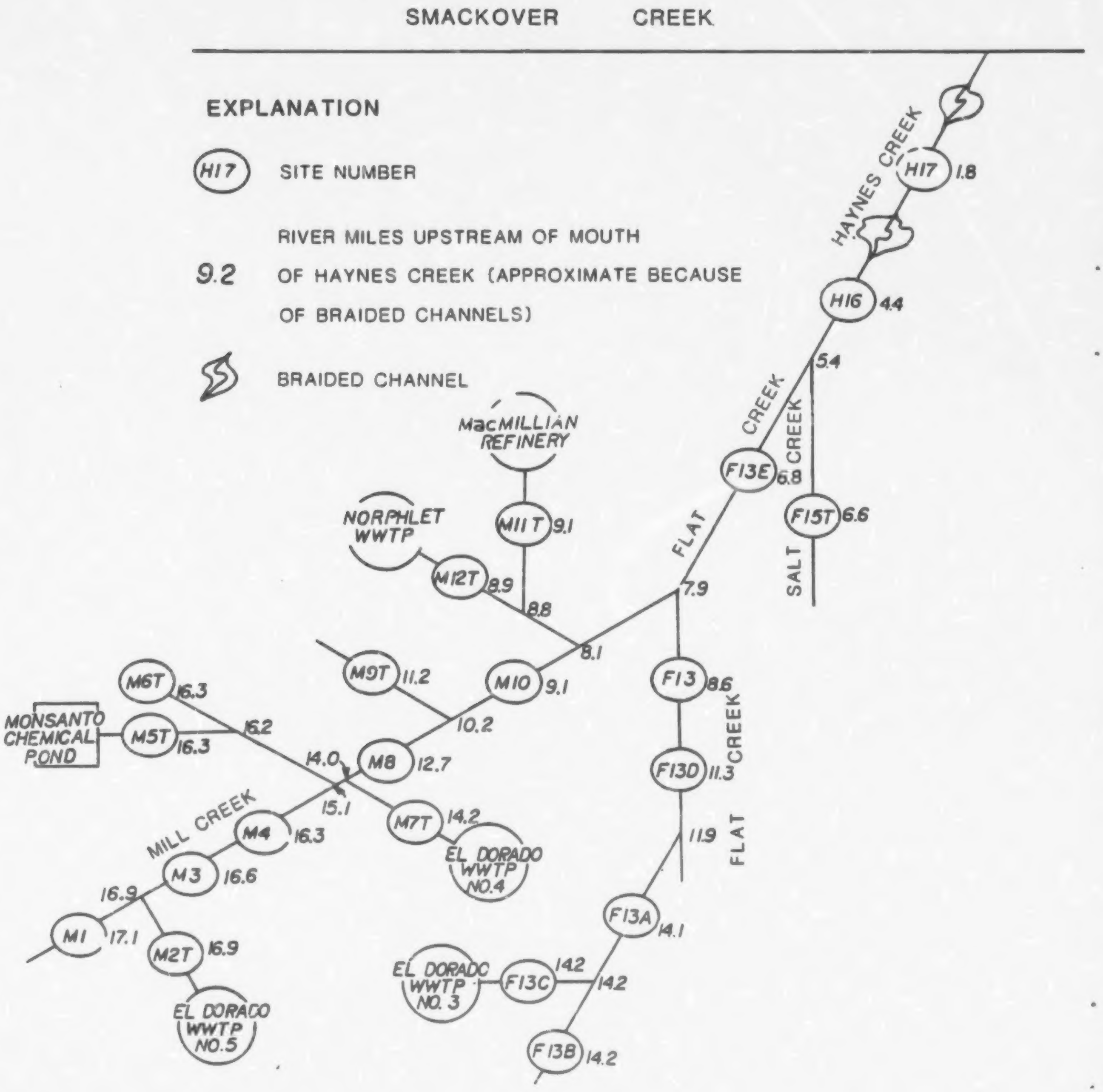

SMACKOVER CREEK
EXPLANATION
H17 SITE NUMBER
9.2 RIVER MILES UPSTREAM OF MOUTH OF HAYNES CREEK (APPROXIMATE BECAUSE OF BRAIDED CHANNELS)
BRAIDED CHANNEL
HAYNES CREEK
H17 1.8
H16 4.4
5.4
FLAT CREEK
SALT CREEK
F13E 6.8
F15T 6.6
MacMILLIAN REFINERY
M11T 9.1
NORPHLET WWTP
M12T 8.9
8.8
7.9
8.1
M9T 11.2
M10 9.1
F13 8.6
M6T 16.3
MONSANTO CHEMICAL POND
M5T 16.3
16.2
10.2
14.0
M8 12.7
F13D 11.3
15.1
M7T 14.2
EL DORADO WWTP NO.4
MILL CREEK
M4 16.3
11.9
M3 16.6
16.9
M1 17.1
M2T 16.9
F13A 14.1
EL DORADO WWTP NO. 3
F13C
14.2
14.2
EL DORADO WWTP NO.5
F13B 14.2

Figure 9.--Schematic diagram showing location of water-quality sampling sites and location of tributaries on Mill Creek, Flat Creek and Haynes Creek.

Table 19.--Mill Creek, Flat Creek and Haynes Creek chemical and physical water-quality data

[Five digit numbers in parentheses are STORET parameter codes used for computer storage of data, E = estimated value]

SITE NUMBER	RIVER MILE	DATE OF SAMPLE	TIME	COLLECTING AGENCY	STREAMFLOW, INSTANTANEOUS (FT3/S) (00061)	PH (STANDARD UNITS) (00400)
F13B	14.2	80-09-17	1030	USGS	0.65	6.9
		81-09-15	1800	do	.15	7.0
F13C	14.2	81-09-15	1715	do	3.6	6.9
		81-09-16	0030	do	3.6	—
		81-09-16	0615	do	3.6	—
F13A	14.1	80-08-19	1315	do	1.3	7.8
		80-08-20	1645	do	3.9	—
		80-09-03	1545	do	—	—
		81-09-15	1730	do	—	6.8
F13D	11.3	81-09-14	1200	do	5.4	6.9
F13	8.6	80-08-21	1045	do	3.0	7.1
		81-09-16	0545	do	15	6.7
M1	17.1	80-08-20	—	do	.00	—
		81-09-18	1245	do	.20	6.2
M2T	16.9	80-08-20	1240	do	1.6	9.7
		81-09-17	1245	do	.00	—
M3	16.6	80-08-20	1330	do	1.6	8.9
		81-09-18	0845	do	—	6.3
M4	16.3	80-08-20	1415	do	1.7	8.3
M5T	16.3	80-09-03	1300	do	1.1	—
		80-09-03	2100	do	1.1	—
		80-09-04	0600	do	1.1	9.0
		81-09-16	1630	do	—	8.3
M6T	16.3	80-09-03	1300	do	.01	—
		80-09-03	2100	do	.01	—
		80-09-04	0600	do	.01	7.5
		81-09-16	1700	do	—	7.8
M7T	14.2	80-08-20	1450	do	.00	—
		81-09-17	1530	do	.00	—
M8	12.7	80-08-19	1230	do	1.6	7.9
		81-09-17	1430	do	2.6	—
M9T	11.2	80-08-19	—	do	.00	—
		81-09-17	1415	do	E.10	7.8
M10	9.1	80-08-19	1130	do	.80	8.3
		81-09-17	1330	do	2.1	7.3

Table 19.--Mill Creek, Flat Creek and Haynes Creek chemical and physical water-quality data--Continued

SITE NUMBER	RIVER MILE	DATE OF SAMPLE	TIME	COLLEC-TING AGENCY	STREAM-FLOW, INSTAN-TANEOUS (FT3/S) (00061)	PH (STAND-ARD UNITS (00400)
M11T	9.1	80-08-20	—	USGS	0.00	—
		80-09-03	1435	do	.17	7.5
		81-09-15	1430	do	.07	7.3
		81-09-15	2300	do	.07	—
		81-09-16	0530	do	.07	—
M12T	8.9	80-08-20	1600	do	.03	7.8
		80-08-21	0015	do	.03	—
		80-08-21	0615	do	.03	—
		81-09-17	1300	do	E.02	—
		81-09-17	2245	do	E.02	—
		81-09-18	0600	do	E.02	7.8
F13E	6.8	81-09-15	2230	do	E14	—
		81-09-15	1300	do	7.1	6.9
F15T	6.6	80-08-20	1730	do	1.3	—
		81-09-15	1630	do	4.7	3.8
H16	4.4	80-08-19	1645	do	6.0	8.1
		81-09-15	1100	do	9.8	6.1
H17	1.8	80-08-19	—	do	.00	—
		81-09-15	1130	do	.00	—

Table 19.--Mill Creek, Flat Creek and Haynes Creek chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (UMHOS) (00095)	SOLIDS, RESIDUE AT 180 DEG C DISSOLVED (MG/L) (70300)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 105 DEG C, SUSPENDED (MG/L) (00530)
F13B	80-09-17	160	101	20	16	--
	81-09-15	138	93	15	<5.0	23
F13C	81-09-16	730	415	80	150	15
F13A	80-08-19	--	471	160	12	397
	80-08-20	--	640	250	14	120
	81-09-15	508	307	58	100	28
F13D	81-09-14	13500	8400	4600	46	2
F13	80-08-21	--	6800	4100	2.8	8
	81-09-15	15700	10200	6000	10	8
M1	81-09-18	1190	711	370	<5.0	6
M2T	80-08-20	650	477	65	20	62
M3	80-08-20	660	452	64	23	88
	81-09-18	645	394	190	<5.0	16
M4	80-08-20	649	458	84	18	51
M5T	80-09-04	1380	1060	57	210	13
	81-09-16	1820	1270	1100	460	9
M6T	80-09-04	--	418	31	57	6
	81-09-16	465	315	30	18	2
M8	80-08-19	1100	699	60	160	12
	81-09-17	--	--	--	--	10
M9T	81-09-17	262	192	25	<5.0	6
M10	80-08-19	1080	709	59	170	5
	81-09-17	1340	897	77	310	2
M11T	80-09-03	3810	2700	680	560	38
	81-09-15	3010	2040	620	410	13
M12T	80-08-20	650	504	140	24	20
	81-09-18	902	546	160	<5.0	109
F13E	81-09-15	24700	16200	9500	45	8
F15T	80-08-19	--	8420	240	6.5	2
	81-09-15	11000	6580	3900	8.0	2
H16	80-08-19	--	6010	3600	18	7
	81-09-15	11000	6730	4000	30	2

Table 19.--Mill Creek, Flat Creek and Haynes Creek chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
F13B	80-09-17	1.8	0.640	0.100	1.20	0.220	0.360
	81-09-15	1.1	.080	.030	.400	.260	.230
F13C	81-09-16	1.9	.290	2.70	.700	.990	1.30
F13A	80-08-19	41	.480	.070	.080	4.10	4.40
	80-08-20	13	.040	.110	.030	3.60	3.90
	81-09-15	1.8	.250	1.90	.800	.750	.750
F13D	81-09-14	.50	2.40	.570	.930	<.010	.030
F13	80-08-21	1.5	.760	.640	.560	.530	.620
	81-09-15	.70	1.30	.890	1.31	.030	.060
M1	81-09-18	.72	.100	.010	.050	.000	.020
M2T	80-08-20	12	.030	.020	.000	7.30	7.90
M3	80-08-20	13	.280	.020	.000	6.50	7.20
	81-09-18	.71	.190	.010	.050	.090	.070
M4	80-08-20	11	.210	.020	.000	6.70	7.60
M5T	80-09-04	4.4	4.20	1.80	54.2	.000	.120
	81-09-16	11	1.30	1.90	46.1	.000	.060
M6T	80-09-04	3.3	8.70	.500	7.40	2.10	2.40
	81-09-16	1.1	.140	.010	4.19	.560	.560
M8	80-08-19	—	1.40	.090	38.9	1.00	1.30
M9T	81-09-17	.99	.110	.010	.150	.230	.120
M10	80-08-19	2.6	.070	.270	39.0	.680	.810
	81-09-17	1.5	2.30	.930	32.1	.020	.080
M11T	80-09-03	2.3	4.10	.010	23.0	.010	.120
	81-09-15	4.1	2.60	.010	.000	.050	.220
M12T	80-08-20	5.3	5.70	.020	.000	4.00	3.90
	81-09-18	17	2.10	.010	.040	.660	4.90
F13E	81-09-15	1.1	1.60	.290	2.21	.090	.110
F15T	80-08-19	.90	1.50	.010	1.20	.000	.020
	81-09-15	.46	.130	.000	.160	.000	.010
H16	80-08-19	1.6	.100	.110	7.70	.020	.080
	81-09-15	1.0	.090	.030	.880	.020	.030

Table 19.--Mill Creek, Flat Creek and Haynes Creek chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEM ULT. CARBONACEOUS (MG/L) (00320)	DEOXYGENATION CARBON K1 TO BASE E /DAY AT 20 DEG C (82133)	STREAMBED OXYGEN DEMAND [(G/M2)/DAY AT 20 DEG C]
F13B	80-09-17	--	--	92	33	0.20	--
	81-09-15	0.50	13	72	30	.06	--
F13C	81-09-16	7.1	15	100	43	.12	--
F13A	80-08-19	.20	8.5	560	--	--	--
	80-08-20	15	39	230	--	--	--
	80-09-03	--	--	--	<64	--	--
	81-09-15	1.5	12	80	116	.02	--
F13D	81-09-14	--	--	2000	2.4	.24	--
F13	80-08-21	.90	15	100	17	.07	--
	81-09-15	.10	7.4	1000	6.5	.12	--
M1	80-06-16	--	--	--	--	--	1.2
	81-09-18	--	--	180	3.5	.10	--
M2T	80-08-20	11	60	240	--	--	--
M3	80-08-20	--	--	250	--	--	--
	80-09-16	--	--	--	--	--	1.2
	81-09-18	--	--	88	4.1	.05	1.4
M4	80-08-20	14	49	210	--	--	--
M5T	80-09-04	--	--	100	--	--	--
	81-09-16	7.2	21	71	7.1	.16	--
M6T	80-09-04	--	--	89	--	--	--
	81-09-16	.10	8.3	59	1.5	.12	--
M8	80-08-19	--	--	--	>7.7	--	--
	80-08-19	--	--	48	--	--	--
	80-09-17	--	--	--	--	--	.8
	81-09-17	--	--	--	12	.04	.9
M9T	81-09-17	--	--	51	10	.02	--
M10	80-08-19	.50	19	32	21	.05	--
	81-09-17	1.3	8.8	66	11	.04	--
M11T	80-09-03	4.8	170	560	>25	--	--
	81-09-15	6.2	110	440	>25	--	--
M12T	80-08-20	2.9	62	270	89	.06	--
	81-09-18	>40	67	280	83	.08	--
F13E	81-09-15	.80	8.9	1400	6.1	.03	--
F15T	80-08-19	--	--	78	2.2	.42	--
	81-09-15	.10	4.4	470	.8	.61	--
H16	80-08-19	.10	6.0	--	7.1	.20	--
	80-09-17	--	--	--	--	--	1.0
	81-09-15	--	--	480	2.6	.11	1.8

Table 20.—Mill Creek, Flat Creek and Haynes Creek temperature and dissolved oxygen data

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATUR-ATION) (00301)
F13B	81-09-15	1800	26.5	5.1	64
	81-09-16	0045	24.5	3.1	37
	81-09-16	0630	23.5	2.9	34
F13C	81-09-15	1715	26.0	6.3	78
	81-09-16	0030	27.5	8.3	105
	81-09-16	0615	26.5	8.3	104
F13A	80-08-20	0025	30.0	5.3	71
	80-08-20	1645	32.0	10.4	142
	80-08-21	0635	27.0	3.9	49
	81-09-15	1730	26.5	6.9	86
	81-09-18	1040	21.0	7.4	83
F13D	81-09-14	1200	24.0	7.7	92
	81-09-14	2345	24.5	6.1	73
	81-09-15	0600	24.5	6.9	83
F13	80-08-18	1000	17.5	7.2	76
	80-08-18	1210	18.5	9.8	105
	80-08-18	1420	20.0	10.2	112
	80-08-18	1700	20.0	11.8	13
	80-08-18	1900	20.5	11.0	125
	80-08-18	2220	19.0	8.7	94
	80-08-19	0640	16.5	7.4	76
	80-08-19	0910	16.0	8.1	83
	80-08-19	1020	16.5	9.8	101
	80-08-21	0520	27.0	2.3	29
	80-08-21	1045	27.0	3.9	49
	80-08-21	2245	29.0	2.4	31
	81-09-15	0545	23.5	3.5	41
	81-09-15	1500	25.5	7.2	88
	81-09-15	2330	25.0	3.6	44
M1	81-09-18	1245	21.5	2.2	25
M2T	80-08-20	1240	32.0	7.5	103
	80-08-20	2300	32.0	6.8	93
	80-08-21	0530	29.5	5.5	72
M3	80-08-20	1330	31.0	2.1	28
	80-08-20	2310	30.0	.2	3
	80-08-21	0540	29.0	.2	3
	81-08-17	1625	20.0	2.3	25
	81-08-17	1825	20.5	1.9	21
	81-08-17	2135	20.0	1.7	19
	81-08-18	0655	18.5	1.5	16
	81-08-18	1055	18.5	2.0	22
	81-08-18	1325	18.5	2.1	23

Table 20.--Mill Creek, Flat Creek and Haynes Creek temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
M3	81-08-18	1510	20.0	2.4	26
	81-09-18	0845	18.5	1.8	19
M4	80-08-20	1415	30.0	1.6	3
	80-08-20	2320	28.0	.4	5
	80-08-21	0550	27.0	.2	3
M5T	80-09-03	1300	30.0	6.7	89
	80-09-03	2100	33.0	7.2	100
	80-09-04	0600	28.0	6.4	82
	81-09-16	0900	27.0	5.7	72
	81-09-16	1630	27.0	8.0	101
M6T	80-09-03	1300	26.5	2.5	31
	80-09-03	2100	29.0	2.7	35
	80-09-04	0600	26.0	2.7	33
	81-09-16	1700	25.0	7.8	95
M8	81-09-17	1430	22.5	9.5	110
	81-09-17	1645	21.0	8.8	99
	81-09-17	1840	21.5	8.7	99
	81-09-17	2145	21.0	6.1	69
	81-09-18	0635	19.0	5.1	55
	81-09-18	0945	19.0	6.0	65
	81-09-18	1145	18.5	6.5	70
	81-09-18	1410	19.0	7.3	78
	81-09-18	1645	20.0	9.8	108
M9T	81-09-17	1415	19.0	8.6	92
	81-09-17	2300	19.0	7.5	81
	81-09-18	0700	16.0	7.4	76
M10	80-08-19	1130	28.0	6.7	86
	80-08-20	0130	29.0	4.2	55
	80-08-20	0605	27.5	3.7	47
	81-09-17	1330	23.5	8.4	98
	81-09-17	1700	22.0	7.9	91
	81-09-17	1850	22.0	7.3	84
	81-09-17	2200	20.5	5.9	66
	81-09-18	0645	17.5	5.5	58
	81-09-18	0940	17.5	6.3	66
	81-09-18	1200	19.0	7.8	84
	81-09-18	1415	21.0	8.2	92
	81-09-18	1655	21.5	9.5	108

Table 20.—Mill Creek, Flat Creek and Haynes Creek temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
M11T	80-09-03	1435	43.0	5.0	122
	81-09-15	1430	43.0	4.2	69
	81-09-15	2300	43.0	4.0	66
	81-09-16	0530	14.5	4.2	67
M12T	80-08-20	1600	31.0	8.2	111
	80-08-21	0015	26.0	.4	5
	80-08-21	0615	24.0	.4	5
	81-09-17	1300	26.0	14.8	183
	81-09-17	2245	22.5	4.8	56
	81-09-18	0600	20.5	.3	3
F13E	81-09-15	1300	26.5	7.1	89
	81-09-15	2230	25.0	5.0	61
	81-09-16	0445	23.5	4.1	48
F15T	80-08-19	0020	27.0	5.6	71
	80-08-19	1730	29.0	7.4	96
	80-08-20	0617	26.0	5.5	68
	81-09-15	1630	25.0	8.9	109
	1-09-18	1010	17.0	7.5	78
	81-09-18	1220	18.0	7.6	81
	81-09-18	1435	18.5	8.2	88
	81-09-18	1705	19.0	9.0	97
	81-09-18	1910	19.0	8.6	92
	81-09-18	2215	18.5	8.2	88
	81-09-19	0635	16.0	8.2	84
	81-09-19	0900	16.0	8.9	91
	81-09-19	1010	16.0	9.3	95
H16	80-08-19	1645	32.0	14.0	192
	80-08-19	2400	30.0	5.5	73
	80-08-20	0600	28.0	3.3	42
	81-09-15	1100	24.0	7.3	75
	81-09-18	0900	18.0	7.1	75
	81-09-18	1000	18.0	7.5	79
	81-09-18	1100	18.5	8.0	86
	81-09-18	1200	19.5	8.6	94
	81-09-18	1300	20.0	9.0	99
	81-09-18	1400	20.5	9.4	105
	81-09-18	1500	21.0	9.8	110
	81-09-18	1600	21.0	10.0	112
	81-09-18	1700	21.5	>10.0	>113

Table 20.--Mill Creek, Flat Creek and Haynes Creek temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATUR-ATION) (00301)
H16	81-09-18	1800	21.0	>10.0	>112
	81-09-18	1900	21.0	10.0	112
	81-09-18	2000	20.5	9.9	110
	81-09-18	2100	20.0	9.1	100
	81-09-18	2200	20.0	8.8	97
	81-09-18	2300	19.5	8.6	94
	81-09-18	2400	19.0	8.5	92
	81-09-19	0100	19.0	8.4	91
	81-09-19	0200	18.0	8.2	87
	81-09-19	0300	17.5	8.0	84
	81-09-19	0400	17.5	8.1	85
	81-09-19	0500	17.0	8.0	83
	81-09-19	0600	17.0	8.0	83
	81-09-19	0700	16.5	8.1	83
	81-09-19	0800	16.0	8.2	83
	81-09-19	0900	16.0	8.7	88
	81-09-19	1000	16.0	9.2	93

Table 21.--Mill Creek, Flat Creek and Haynes Creek biological data

[Five digit numbers in parentheses are STORET parameter codes used for computer storage of data, COLS. = colonies, 0.7 UM-MF = 0.7 micron membrane filter, K = plate count was outside ideal range]

SITE NUMBER	DATE OF SAMPLE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT (G/M2) (00572)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT (G/M2) (00573)	CHLOR-A PERI-PHYTON CHROMO GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
F13A	81-09-19	1610	4.88	7.32	12.9	3.29	189
F13D	81-09-19	1830	62.6	81.8	6.71	2.33	2860
M3	81-09-19	1100	--	--	--	35.6	--
H16	81-05-19	1015	24.5	40.9	48.0	13.3	342

Table 21.--Mill Creek, Flat Creek and Haynes Creek biological data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	PHYTO-PLANK-TON, TOTAL (CELLS /ML)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	COLI-FORM, TOTAL, IMMED. (COLS./ 100 ML)	COLI-FORM FECAL, 0.7 UM-MF (COLS./ 100 ML)
F13B	81-09-15	1800	--	--	--	4600	K17000
F13C	81-09-16	--	--	--	--	K800	K100
F13A	80-08-19	1315	--	--	--	K91000	4500
	80-08-20	1645	--	--	--	1300	110
	81-09-15	1730	2400	25.5	<.010	56000	K11000
F13D	81-09-14	1200	--	--	--	K2800	660
F13	80-08-21	1045	--	--	--	--	500
	81-09-15	0545	9300	6.94	1.02	7900	K2500
M1	81-09-18	1245	--	--	--	350	300
M2T	80-08-20	1240	--	--	--	K39000	>170
M3	80-08-20	1330	--	--	--	K63	K10000
	81-09-18	0845	--	8.87	3.97	K2200	K330
M4	80-08-20	1415	--	--	--	K73000	>170
M5T	80-09-04	0600	--	--	--	K450	K67
M6T	80-09-04	0600	--	--	--	K100000	K100000
	81-09-16	1700	--	--	--	K500	<3300
M8	80-08-19	1230	--	--	--	560	K290
	81-09-17	1430	--	51.7	8.33	K4400	K110
M9T	81-09-17	1415	--	--	--	1500	K2200
M10	80-08-19	1130	--	--	--	K1700	46
	81-09-17	1330	67000	31.7	6.52	1700	120
M11T	80-09-03	1435	--	--	--	1	<1
	81-09-15	1430	--	--	--	2	<1
M12T	80-08-20	1600	--	--	--	K91000	>17
	81-09-18	0600	--	--	--	85000	57000
F13E	81-09-15	1300	14000	13.6	.760	K180	K13
F15T	80-08-19	1730	--	--	--	K10	<1
	80-08-20	0617	--	--	--	--	<1
	81-09-15	1630	14	1.46	.260	3	<1
H16	80-08-19	1645	--	--	--	880	17
	81-09-15	1100	--	--	--	1400	38

Table 22.--Phytoplankton taxonomy and densities for Mill Creek, Flat Creek, Salt Creek and Haynes Creek

Scientific name	Common name	cells/milliliter		
		M10 81-09-17	F13A 81-09-15	F13 81-09-15
Chlorophyta	Green algae			
.Chlorophyceae				
..Chlorococcales				
...Micractiniaceae				
....*Micractinium*		1,500	---	---
...Oocystaceae				
....*Ankistrodesmus*		---	---	23
....*Closteriopsis*		610	---	---
....*Kirchneriella*		[a]11,000	---	---
...Scenedesmaceae				
....*Scenedesmus*		310	190	93
..Volvocales				
...Chlamydomonadaceae				
....*Chlamydomonas*		920	---	23
...Volvocaceae				
....*Gonium*		4,900	---	---
Chrysophyta	Yellow-green algae			
.Bacillariophyceae	Diatoms			
..Centrales	Centric diatoms			
...Coscinodiscaceae				
....*Cyclotella*		---	---	47
..Pennales	Pennate diatoms			
...Cymbellaceae				
....*Amphora*		---	---	23
...Fragilariaceae				
....*Synedra*		---	93	---
...Naviculaceae				
....*Navicula*		---	---	[a]1,700
...Nitzschiaceae				
....*Nitzschia*		310	---	420
Cryptophyta	Cryptomonads			
.Cryptophyceae				
..Cryptomonadales				
...Cryptomonadaceae				
....*Cryptomonas*		---	---	47
Cyanophyta	Blue-green algae			
.Cyanophyceae				
..Chroococcales	Coccoid blue-greens			
...Chroococcaceae				
....*Agmenellum*		6,100	---	---
....*Anacystis*		[a]21,000	---	[a]5,800

Table 22.--Phytoplankton taxonomy and densities for Mill Creek, Flat Creek, Salt Creek and Haynes Creek--Continued

		cells/milliliter		
Scientific name	Common name	M10	F13A	F13
..Hormogonales	Filamentous blue-greens			
...Nostocaceae				
....*Anabaena*		—	[a]2,200	—
....*Aphanizomenon*		9,200	—	—
...Oscilatoriaceae				
....*Lyngbya*		[a]11,000	—	—
....*Oscillatoria*		—	—	1,200

		F13E 81-09-15	F15T 81-09-15
Chlorophyta	Green algae		
.Chlorophyceae			
..Chlorococcales			
...Oocystaceae			
....*Ankistrodesmus*		47	—
....*Chodatella*		23	—
..Volvocales			
...Chlamydomonadaceae			
....*Chlamydomonas*			
Chrysophyta			
.Bacillariophyceae	Diatoms		
..Centrales	Centric diatoms		
...Coscinodiscaceae			
....*Cyclotella*		160	—
..Pennales	Pennate diatoms		
...Achnanthaceae			
....*Achnanthes*		70	—
...Cymbellaceae			
....*Cymbella*		120	—
...Naviculaceae	Naviculoids		
....*Entomoneis*		93	—
....*Navicula*		610	[a]14
...Nitzschiacea			
....*Nitzschia*		560	—
Cryptophyta	Cryptomonads		
.Cryptophyceae			
..Cryptomonadales			
...Cryptoomonadaceae			
....*Cryptomonas*		70	—
Cyanophyta	Blue-green algae		
.Cyanophyceae			
..Chroococcales	Coccoid blue-greens		
...Chroococcaceae			

Table 22.—Phytoplankton taxonomy and densities for Mill Creek, Flat Creek, Salt Creek and Haynes Creek—Continued

Scientific name	Common name	cells/milliliter F13E 81-09-15	 F15T 81-09-15
....*Anacystis*		[a]11,000	---
..Hormogonales	Filamentous blue-greens		
...Oscillatoriaceae			
....*Oscillatoria*		1,100	---
Euglenophyta	Euglenoids		
.Euglenophyceae			
..Euglenales			
...Euglenaceae			
....*Euglena*		140	---
Pyrrhophyta	Fire algae		
.Dinophyceae	Dinoflagellates		
..Gymnodiniales			
...Gymnodiniaceae			
....*Gymnodinium*		160	---

---

[a] Dominant organism, cell counts greater than or equal to 15 percent of total count for the site.

Table 23.--Periphyton taxa for Mill Creek, Flat Creek, Salt Creek and Haynes Creek

[Sampling strips collected 81-09-19]

Scientific name	Common name	M3	F13A
Chlorophyta	Green algae		
.Chlorophyceae			
..Chlorococcales			
...Chlorococcaceae			
....*Characium*		X	—
..Oedogoniales			
...Oedogoniaceae			
....*Oedogonium*		X	—
..Ulotrichales			
...Chaetophoraceae			
....*Pseudoulvella*		—	*
....*Stigeoclonium*		—	X
...Coleochaetaceae			
....*Coleochaete*		—	*
..Volvocales			
...Chlamydomonadaceae			
....*Chlamydomonas*		—	X
Chrysophyta	Yellow-green algae		
.Bacillariophyceae	Diatoms		
..Centrales	Centric diatoms		
...Coscinodiscaceae			
....*Cyclotella*		—	X
..Pennales	Pennate diatoms		
...Cymbellaceae			
....*Cymbella*		X	—
...Eunotiaceae			
....*Eunotia*		X	X
...Fragilariaceae			
....*Fragilaria*		—	X
....*Synedra*		X	—
...Gomphonemataceae			
....*Gomphonema*		X	X
...Naviculaceae	Naviculoids		
....*Frustulia*		X	—
....*Gyrosigma*		—	X
....*Navicula*		X	X
...Nitzschiaceae			
....*Nitzschia*		X	X
Cyanophyta	Blue-green algae		
.Cyanophyceae			
..Chroococcales	Coccoid blue-greens		
...Chroococcaceae			
....*Anacystis*		—	X

Table 23.--Periphyton taxa for Mill Creek, Flat Creek, Salt Creek and Haynes Creek--Continued

Scientific name	Common name	M3	F13A
..Hormogonales	Filamentous blue-greens		
...Oscillatoriaceae			
....*Lyngbya*		X	---
....*Oscillatoria*		X	X
Euglenophyta	Euglenoids		
.Euglenophyceae			
..Euglenales			
...Euglenaceae			
....*Trachelomonas*		X	---

		M3	F13A	H16
Chlorophyta	Green algae			
.Chlorophyceae				
..Chlorococcales				
...Scenedesmaceae				
....*Scenedesmus*		---	---	X
..Ulotrichales				
...Coleochaetaceae				
....*Coleochaete*		---	X	---
...Ulotrichaceae				
....*Ulothrix*		---	*	---
..Zygnematales				
...Zygnemataceae				
....*Mougeotia*		---	X	---
Chrysophyta	Yellow-green algae			
.Bacillariophyceae	Diatoms			
..Centrales	Centric diatoms			
...Coscinodiscaceae				
....*Cyclotella*		---	---	X
..Pennales	Pennate diatoms			
...Cymbellaceae				
....*Amphora*		---	---	X
...Eunotiaceae				
....*Eunotia*		---	*	---
...Naviculaceae	Naviculoids			
....*Entomoneis*		---	---	X
....*Navicula*		*	---	X
...Nitzschiaceae				
....*Nitzschia*		*	X	*

Table 23.--Periphyton taxa for Mill Creek, Flat Creek, Salt Creek and Haynes Creek--Continued

Scientific name	Common name	M3	F13A	H16
Cyanophyta	Blue-green algae			
.Cyanophyceae				
..Chroococcales	Coccoid blue-greens			
...Chroococcaceae				
....*Anacystis*		X	---	---
..Hormogonales	Filamentous blue-greens			
...Oscillatoriaceae				
....*Lynbya*		---	X	---
....*Oscillatoria*		---	---	*

X Indicates organism present

* Indicates a dominant organism, estimated to be greater than 15 percent of total algal cells on sampling strip

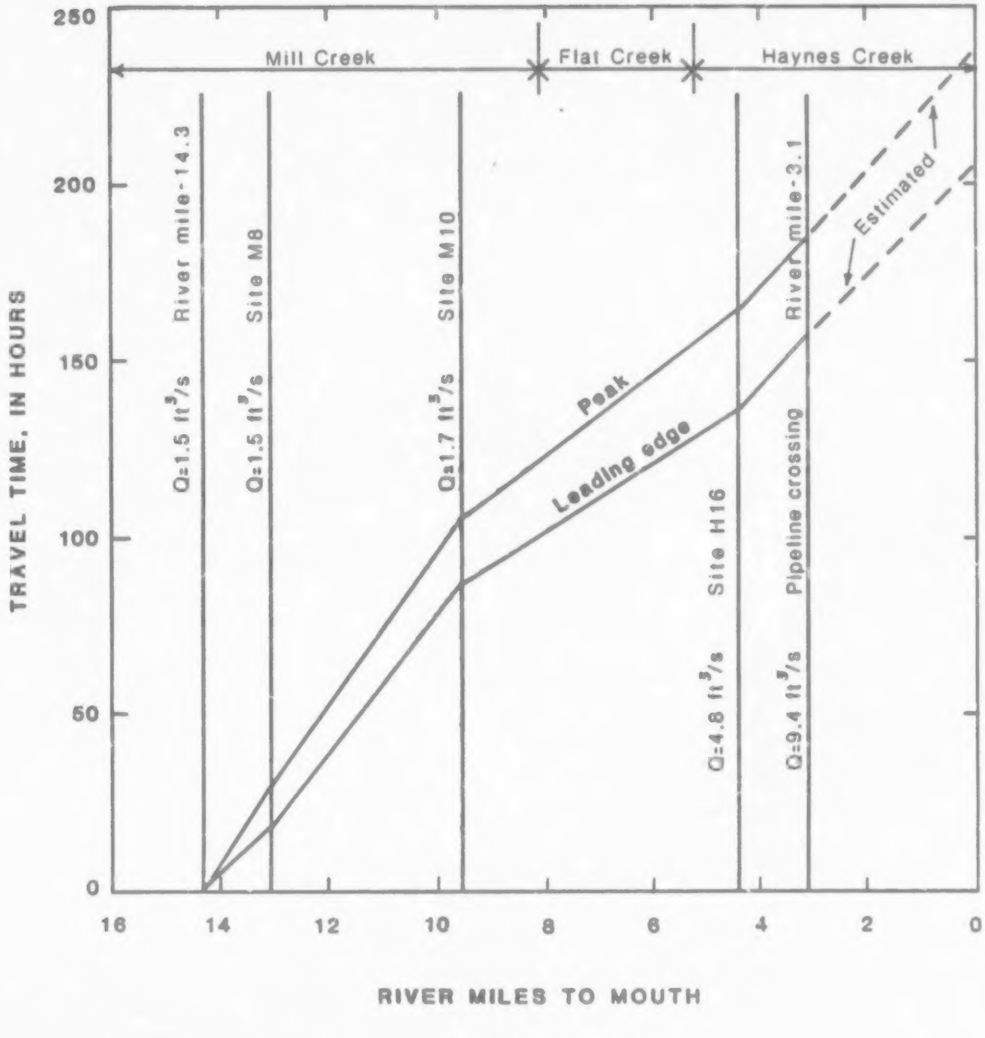


Figure 10.--Traveltime of the tracer cloud in the stream system of Mill Creek, Flat Creek and Haynes Creek located northeast of El Dorado, Arkansas. Discharge at time of tracer cloud passage is noted at each sampling site. (Modified from Lamb, 1983).

Table 24.--Haynes, Mill and Flat Creek cross-section data

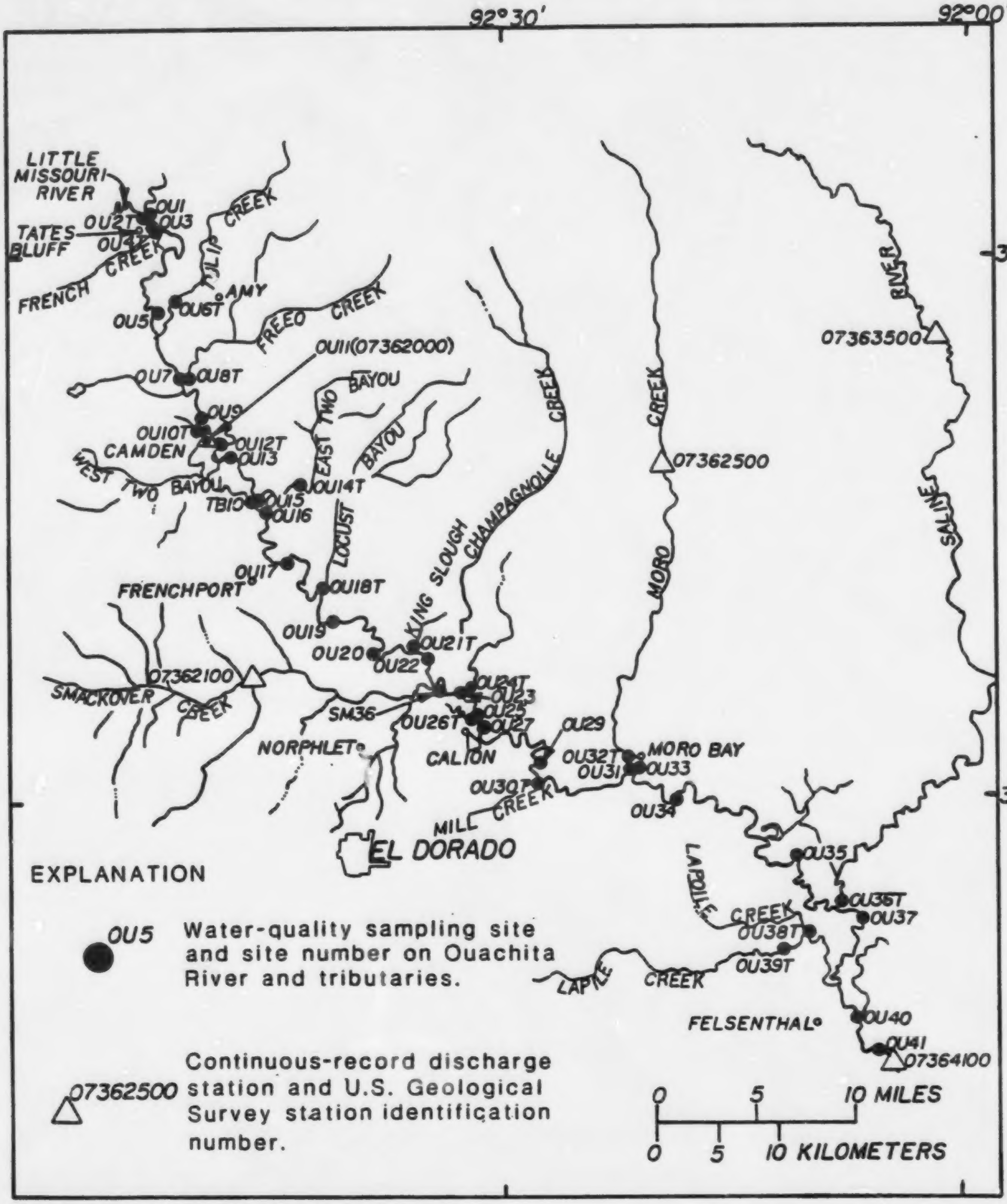
River mile	Date	Width (feet)	Average depth (feet)
HAYNES AND MILL CREEKS			
17.2	80-08-20	20	2.0
16.7	80-08-21	18	2.0
13.2	81-09-18	15	10
13.1	80-08-21	20	3.0
13.0	81-09-18	30	10
9.7	80-08-21	18	1.0
9.6	80-08-21	20	1.8
9.4	80-08-21	19	1.8
4.4	80-08-19	20	6.2
FLAT CREEK AND TRIBUTARY			
14.0	80-08-20	30	1.0
8.6	80-08-20	25	4.5
8.6	81-09-18	25	1.6

Table 25.—List of lower Ouachita River water-quality sampling sites

Site Name	Site Identification Number	USGS Station Number	Location	
			Latitude	Longitude
Ouachita River upstream from Little Missouri River near Tates Bluff, Arkansas	OU1	07360170	334829	0925342
Little Missouri River at mouth near Tates Bluff, Arkansas	OU2T	07361810	334828	0925352
Ouachita River downstream from Tates Bluff, Arkansas	OU3	07361812	334743	0925314
French Creek at mouth near Tates Bluff, Arkansas	OU4T	07361820	334734	0925256
Ouachita River 1.7 miles upstream from Tulip Creek near Tates Bluff, Arkansas	OU5	07361840	334312	0925300
Tulip Creek at county road bridge 3 miles east of Amy, Arkansas	OU6T	07361860	334357	0925204
Ouachita River 0.3 miles upstream from Freeo Creek near Kent, Arkansas	OU7	07361870	333927	0925138
Freeo Creek near Kent, Arkansas	OU8T	07361924	333928	0925058
Ouachita River southwest of Fisher Lake near Kent, Arkansas	OU9	07361950	333722	0925002
Ecore Fabre Bayou near mouth near Camden, Arkansas	OU10T	07361980	333636	0925036
Ouachita River at Camden, Arkansas	OU11	07362000	333547	0924905
Palmer Bayou at mouth east of Camden, Arkansas	OU12T	07362010	333546	0924853
Ouachita River east of Camden, Arkansas	OU13	07362020	334557	0924819
East Two Bayou Creek near mouth near Camden, Arkansas	OU14T	07362040	333305	0924547
Ouachita River downstream from East Two Bayou Creek near Camden, Arkansas	OU15	07362042	333234	0924634
West Two Bayou Creek at mouth near Camden, Arkansas	TB10	073620638	333222	0924642
Ouachita River one mile northeast of Pedron Lake near Camden, Arkansas	OU16	07362064	333156	0924539
Ouachita River at Frenchport Landing near Frenchport, Arkansas	OU17	07362067	332903	0924512
Locust Bayou near mouth near Snow Hill, Arkansas	OU18T	07362071	332443	0924153
Ouachita River at Newport, Arkansas	OU19	073620712	332549	0924143
Ouachita River one mile northeast of Snow Hill, Arkansas	OU20	073620714	332405	0923846

Table 25.—List of lower Ouachita River water-quality sampling sites—Continued

Site Name	Site Identification Number	USGS Station Number	Location Latitude	Location Longitude
King Slough 1.4 miles from mouth near Snow Hill, Arkansas	OU21T	073620716	332510	0923531
Ouachita River northwest of Hades Lake near Snow Hill, Arkansas	OU22	073620718	332347	0923505
Smackover Creek at mouth near Calion, Arkansas	SM36	07362230	332205	0923206
Ouachita River north of Calion, Arkansas	OU23	07362250	332157	0923246
Champagnolle Creek at mouth near Calion, Arkansas	OU24T	07362375	332128	0923206
Ouachita River at Highway 167 at Calion, Arkansas	OU25	07362380	332044	0923155
Chapelle Slough upstream from Highway 167 at Calion, Arkansas	OU26T	07362387	332034	0923210
Ouachita River east of Calion, Arkansas	OU27	07362392	331954	0923130
Ouachita River at Lock 8 near Calion, Arkansas	OU29	07362400	331807	0922742
Mill Creek at mouth near Calion, Arkansas	OU30T	07362410	331704	0922740
Ouachita River 0.8 miles upstream of Moro Bay near Moro Bay, Arkansas	OU31	07362430	331752	0922135
Moro Creek at mouth in Moro Bay west of Moro Bay, Arkansas	OU32T	07362558	331827	0922158
Ouachita River at mouth of Moro Bay near Moro Bay, Arkansas	OU33	07362559	331755	0922101
Ouachita River at Careyville Landing near Moro Bay, Arkansas	OU34	07362565	331553	0921834
Ouachita River at Caney Marais Bend southeast of Moro Bay, Arkansas	OU35	07362575	331250	0921049
Saline River at mouth southeast of Moro Bay, Arkansas	OU36T	07364043	331000	0920804
Ouachita River near Crossett, Arkansas	OU37	07364050	330900	0920630
Lapoile Creek at Highway 82 near Felsenthal, Arkansas	OU38T	07364075	330853	0921022
Lapile Creek near Felsenthal, Arkansas	OU39T	07364072	330732	0921152
Ouachita River at railroad bridge east of Felsenthal, Arkansas	OU40	07364077	330334	0920645
Ouachita River at Lock and Dam 6 near Felsenthal, Arkansas	OU41	07364080	330155	0920515


92°30'
92°00'
33°45'
33°15'
LITTLE MISSOURI RIVER
TATES BLUFF
FRENCH CREEK
OU1
OU2T
OU3
OU4T
FLIP CREEK
AMY
OU5
OU6T
FREEO CREEK
OU11(07362000)
OU7
OU8T
OU9
OU10T
CAMDEN
OU12T
OU13
TWO BAYOU
EAST TWO BAYOU
WEST TWO BAYOU
BAYOU
TB10
OU14T
OU15
OU16
LOCUST BAYOU
OU17
FRENCHPORT
OU18T
KING SLOUGH
CHAMPAGNOLLE CREEK
OU19
OU20
OU21T
OU22
07362100
SMACKOVER CREEK
SM36
OU24T
OU23
OU25
OU26T
OU27
NORPHLET
CALION
OU29
OU30T
MILL CREEK
EL DORADO
OU32T
OU31
MORO BAY
OU33
OU34
MORO CREEK
07362500
SALINE RIVER
07363500
LAPILE CREEK
OU35
OU36T
OU37
OU38T
OU39T
FELSENTHAL
OU40
OU41
07364100
0 5 10 MILES
0 5 10 KILOMETERS
EXPLANATION
OU5 Water-quality sampling site and site number on Ouachita River and tributaries.
07362500 Continuous-record discharge station and U.S. Geological Survey station identification number.

Base from U.S. Geological Survey
State base map, 1:500,000, 1967.

Figure 11.--Location of water-quality sampling sites on lower Ouachita River and selected sites on tributaries.

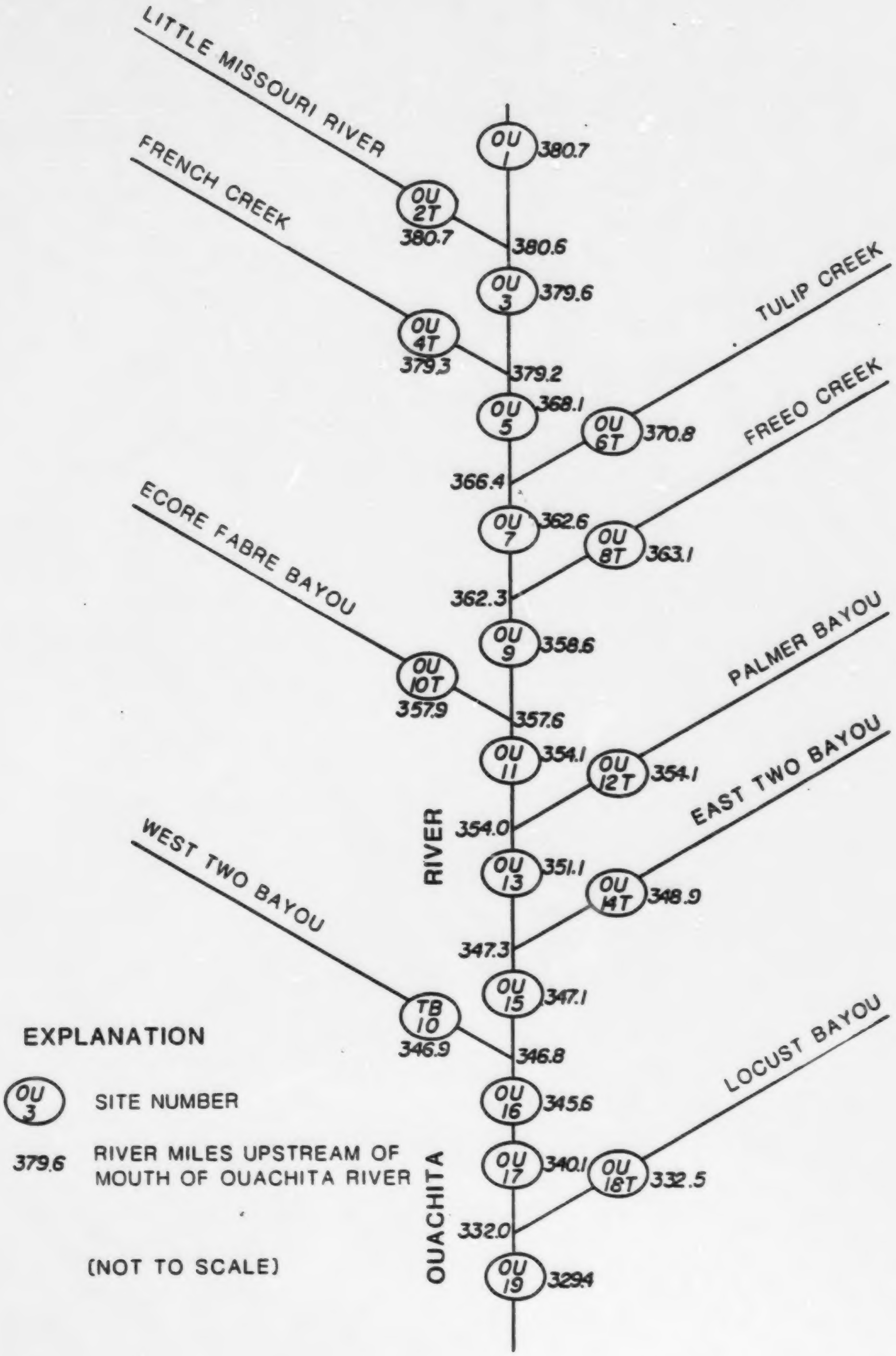

LITTLE MISSOURI RIVER
FRENCH CREEK
TULIP CREEK
FREEO CREEK
ECORE FABRE BAYOU
PALMER BAYOU
EAST TWO BAYOU
WEST TWO BAYOU
LOCUST BAYOU
OUACHITA RIVER
OU 1 380.7
OU 2T 380.7
380.6
OU 3 379.6
OU 4T 379.3
379.2
OU 5 368.1
OU 6T 370.8
366.4
OU 7 362.6
OU 8T 363.1
362.3
OU 9 358.6
OU 10T 357.9
357.6
OU 11 354.1
OU 12T 354.1
354.0
OU 13 351.1
OU 14T 348.9
347.3
OU 15 347.1
TB 10 346.9
346.8
OU 16 345.6
OU 17 340.1
OU 18T 332.5
332.0
OU 19 329.4
EXPLANATION
OU 3 SITE NUMBER
379.6 RIVER MILES UPSTREAM OF MOUTH OF OUACHITA RIVER
(NOT TO SCALE)

Figure 12a.--Schematic diagram showing location of water-quality sampling sites and tributaries on lower Ouachita River.

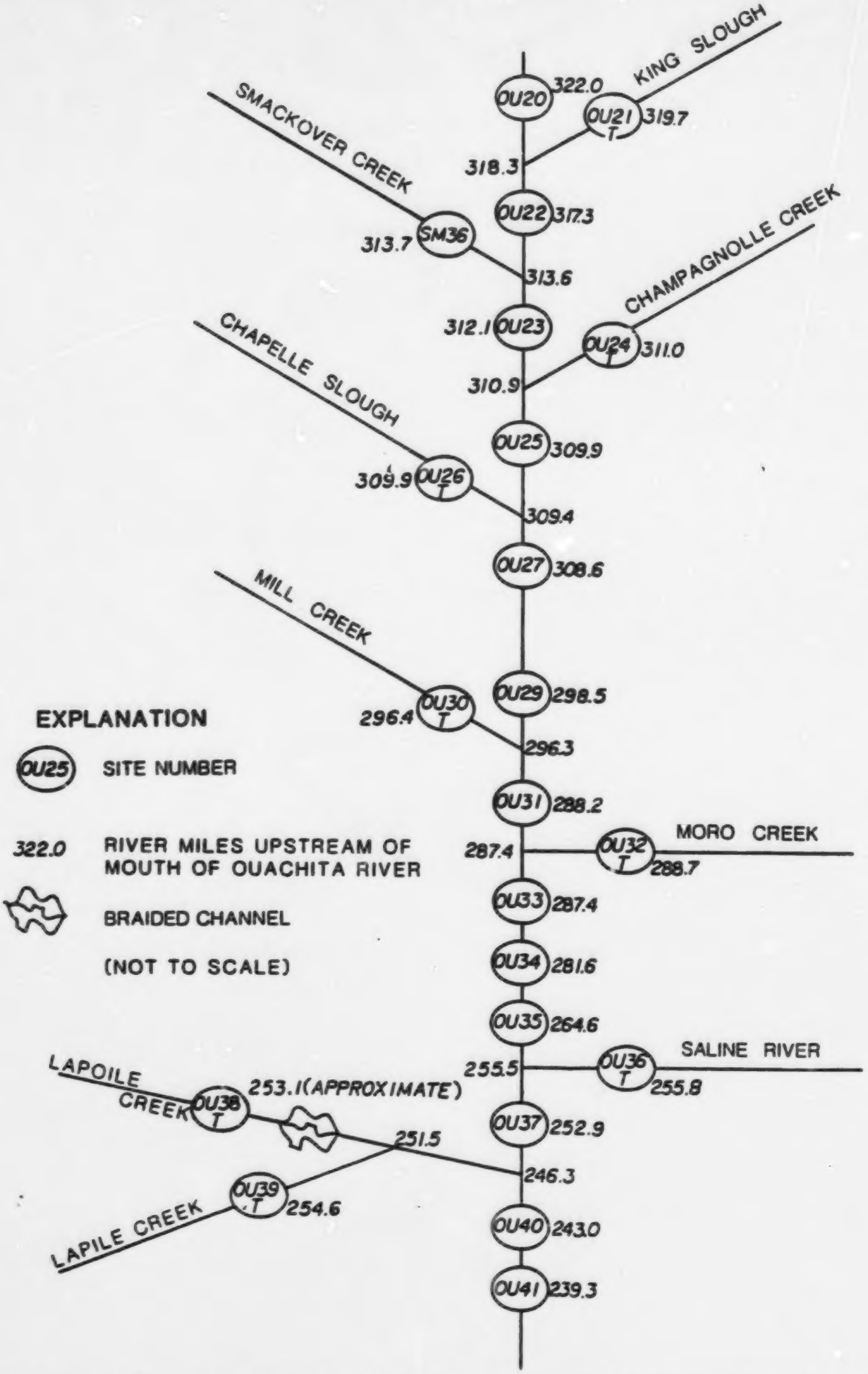

KING SLOUGH
OU20
322.0
OU21 T
319.7
318.3
SMACKOVER CREEK
OU22
317.3
SM36
313.7
313.6
CHAMPAGNOLLE CREEK
OU23
312.1
OU24 T
311.0
310.9
CHAPELLE SLOUGH
OU25
309.9
OU26 T
309.9
309.4
OU27
308.6
MILL CREEK
OU29
298.5
OU30 T
296.4
296.3
EXPLANATION
OU25 SITE NUMBER
322.0 RIVER MILES UPSTREAM OF MOUTH OF OUACHITA RIVER
BRAIDED CHANNEL
(NOT TO SCALE)
OU31
288.2
MORO CREEK
287.4
OU32 T
288.7
OU33
287.4
OU34
281.6
OU35
264.6
SALINE RIVER
255.5
OU36 T
255.8
LAPOILE CREEK
OU38 T
253.1(APPROXIMATE)
OU37
252.9
251.5
246.3
OU39 T
254.6
LAPILE CREEK
OU40
243.0
OU41
239.3

Figure 12b.--Schematic diagram showing location of water-quality sampling sites and tributaries on lower Ouachita River.

Table 26--Mean-daily discharge for 1980 water year, in cubic feet per second, at site OU11, Ouachita River at Camden

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2030	4690	4790	5500	9550	4400	16100	5070	9670	2180	1970	502
2	2340	5340	4490	4500	12100	4400	14100	5000	7060	1250	1510	534
3	3720	4600	4300	4100	8320	5200	12000	7030	5790	1550	1520	482
4	3370	3800	3700	5500	6040	5600	10100	11000	5800	1880	1110	410
5	3480	3400	3500	6960	5160	4070	7420	10200	5220	1800	994	437
6	3750	3200	3800	6170	7000	3400	5020	9030	6620	1320	1110	1210
7	2790	3100	4100	5180	6790	2900	3990	7360	6890	1100	1200	1910
8	2290	3500	3800	3940	8400	3000	4040	5890	7040	755	1350	1400
9	1680	4100	3400	4950	13000	3200	4880	7550	5430	1970	1220	1120
10	2500	4920	3100	4790	18300	2500	5180	7130	4000	2960	1260	1270
11	2530	5690	3000	4720	20500	2400	4500	5440	3100	3100	1080	1190
12	2340	5390	3500	4950	21000	3500	7500	3380	2300	2870	1180	1080
13	2180	4910	5000	4430	19900	7400	13000	5960	1800	3210	2390	1080
14	2470	4650	10000	3800	17000	8070	19300	14900	1400	2410	2790	1050
15	2780	4810	17600	3400	14000	7530	26800	16900	1100	3390	3040	983
16	2520	4010	16200	3300	11000	5460	33600	16900	1000	4990	2130	1150
17	2730	3720	12200	4500	8450	7280	36100	21200	1200	3870	2090	1420
18	2690	3310	8150	6040	7510	15400	34500	22000	1460	2860	1440	1790
19	2350	2190	6220	6120	6500	18900	26900	24700	1130	2080	1060	1730
20	2410	1680	5520	5690	5880	18500	17400	23700	1140	1430	926	1130
21	2550	2910	4320	5400	5360	15800	11200	21100	1870	1360	1480	1110
22	2660	4170	3900	9540	4950	13200	7860	17200	1530	516	1220	981
23	3720	7320	5500	17400	4720	10300	5680	17600	1380	299	1550	1000
24	3640	8730	9000	21100	4500	11900	4460	19400	1480	248	1810	1640
25	2230	8000	16600	22200	4100	19400	3570	20700	2150	312	1310	1040
26	2510	6500	20100	22400	4500	22400	5820	22000	1960	429	1050	1050
27	1860	5520	19800	19200	5000	21300	11000	20200	2480	618	1030	1010
28	1910	4920	18800	11400	5000	18200	11000	14300	2420	727	966	1200
29	2210	4750	15000	7630	4600	15000	8580	11600	3070	1410	817	6080
30	2300	4720	9500	6820	---	10800	6000	13800	2800	1080	952	16000
31	2840	---	7000	7100	---	15600	---	13500	---	1110	613	---

Table 27--Mean-daily discharge for 1981 water year, in cubic feet per second, at site OU11, Ouachita River at Camden

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20400	2500	5760	1990	2590	3770	8000	6270	11100	4550	13600	2330
2	20100	2210	3400	2330	3500	9180	7800	6330	9950	8080	11300	2390
3	20400	2660	4100	1850	5000	13300	7300	4890	10700	12900	6470	215
4	16600	2090	4400	1690	7000	14300	7100	4620	14700	13200	4410	210
5	9440	2460	5000	1590	6620	15700	7600	4410	20900	11400	4530	203
6	4830	2310	4200	1710	5760	17200	6500	4340	25100	12000	3830	128
7	2690	1890	3300	2640	5390	16200	5200	3580	28100	14800	3680	155
8	2940	1820	2900	3360	3750	12300	4500	3140	30800	13100	5090	197
9	2800	1610	4000	3200	3080	8870	4800	3380	33400	11800	5220	186
10	2750	1430	7000	3250	2710	6560	5000	4980	36500	10700	3340	172
11	2840	1320	11000	3280	4230	6140	4800	7560	35400	8270	2250	156
12	2880	1290	16000	1940	7480	5880	4400	8270	29300	5920	2110	182
13	1760	1280	23000	2630	10400	5160	4000	7020	24100	3760	2890	200
14	1280	1960	19000	2780	9460	4950	3300	6030	22000	3280	3910	187
15	1020	4390	13000	2500	7380	4010	4450	7610	20600	3980	3890	244
16	888	13800	8500	2360	5670	3000	3840	7110	18600	5110	3770	188
17	888	17600	7010	2350	4420	2000	3090	10600	18800	4970	3700	207
18	1670	20200	6860	3860	4830	2700	2070	17100	21300	3880	3590	115
19	5410	23600	5800	3350	4240	3500	1480	21100	21400	2860	4160	98
20	5510	24400	5100	2320	4190	3600	1360	23500	20600	2820	4660	94
21	3380	22500	5000	2270	3550	2800	1440	23000	18100	2400	3850	92
22	2360	17100	5400	2250	3280	2500	2020	19600	12800	2530	2910	99
23	1790	12300	5400	2420	5510	3100	3280	15500	10200	2540	2700	98
24	1830	8880	4800	2270	6640	3600	3710	9990	8570	2390	2070	109
25	1850	7530	3800	2250	6030	3800	5790	6890	8700	2240	1540	144
26	1770	6620	3900	1900	5440	3600	6100	7390	8940	2340	1390	170
27	1650	7140	3700	1690	4660	3200	5540	10500	7620	2290	1480	203
28	2120	8390	3100	1800	3730	2900	4510	9900	6980	2100	2520	153
29	2370	8300	2500	1610	---	2700	5170	11200	5390	1660	2460	119
30	4170	6950	2200	1690	---	4500	5720	12000	4650	4820	2170	164
31	2420	---	2250	1680	---	6500	---	12200	---	11000	2090	---

Table 28.--Mean-daily discharge for 1980 water year, in cubic feet per second, at Moro Creek near Fordyce (07362500)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	35	140	351	428	72	2440	74	187	1.5	0.00	0.00
2	6.6	18	120	233	369	69	2050	190	140	1.3	.00	.00
3	7.7	11	100	200	347	67	1350	1020	90	1.1	.00	.00
4	10	7.8	80	267	333	65	1020	795	58	.95	.00	.00
5	10	5.9	70	285	323	65	748	732	41	.71	.00	.00
6	9.5	5.8	60	293	358	64	470	700	31	.60	.00	.00
7	8.0	7.1	50	307	373	65	293	648	24	.48	.00	.00
8	6.5	7.1	45	312	552	68	190	726	20	.32	.00	.00
9	5.6	16	40	283	1980	69	134	607	16	.17	.00	.00
10	5.6	20	35	245	2380	65	104	427	13	.04	.00	.00
11	5.1	15	32	281	2650	58	87	345	11	.00	.00	.00
12	4.4	15	35	287	2400	178	275	329	8.9	.00	.00	.00
13	4.8	10	274	251	1910	368	1100	659	7.6	.00	.00	.00
14	3.7	10	473	226	1430	394	3370	2270	6.7	.00	.00	.00
15	2.3	9.5	557	224	1080	408	4360	2610	5.7	.00	.00	.00
16	1.2	9.0	2500	225	867	555	3380	2940	5.1	.00	.00	.00
17	.64	8.5	2290	281	663	1730	2200	2620	4.8	.00	.00	.00
18	.43	8.5	1520	330	498	2570	1450	2060	4.5	.00	.00	.00
19	.55	9.5	1070	393	370	2870	1000	1810	4.2	.00	.00	.00
20	.79	10	819	396	293	2710	717	1670	3.9	.00	.00	.00
21	.93	9.5	574	461	237	2050	458	1270	3.6	.00	.00	.00
22	4.5	150	372	993	197	1330	267	1750	3.2	.00	.00	.00
23	9.0	500	335	1750	169	1210	161	1400	3.2	.00	.00	.00
24	8.3	450	820	2040	146	3210	105	1020	3.0	.00	.00	.00
25	7.4	450	992	2220	125	2950	83	731	2.6	.00	.00	.00
26	7.5	800	827	1920	106	2770	110	678	2.4	.00	.00	.00
27	6.4	500	787	1450	92	2440	99	687	2.2	.00	.00	.00
28	7.5	350	791	1070	83	1770	74	584	2.0	.00	.00	2.6
29	18	240	795	829	75	1420	56	414	1.8	.00	.00	102
30	16	180	722	626	---	2550	45	291	1.7	.00	.00	269
31	33	---	549	520	---	2330	---	212	---	.00	.00	---

Table 29.--Mean-daily discharge for 1981 water year, in cubic feet per second, at Moro Creek near Fordyce (07362500)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313	58	213	36	59	130	110	13	210	134	66	6.0
2	315	47	224	34	147	120	100	11	307	343	37	6.2
3	313	35	207	32	219	110	95	9.9	883	260	15	6.1
4	351	26	165	30	292	100	90	9.4	956	109	7.6	5.1
5	394	20	118	27	330	120	180	11	1170	54	4.5	4.2
6	353	17	87	29	312	130	270	14	3680	47	3.2	3.6
7	184	16	69	39	240	150	370	12	3400	42	2.7	3.0
8	67	14	59	48	180	160	568	10	2470	45	2.8	2.7
9	35	13	105	59	160	140	673	18	1680	41	2.6	2.3
10	23	12	233	61	150	120	602	66	1210	28	1.9	1.9
11	17	12	328	57	160	100	323	81	984	19	1.3	1.7
12	13	11	387	52	190	85	157	110	686	13	1.0	1.4
13	11	11	490	47	220	80	98	120	337	9.2	.86	1.3
14	9.3	12	702	44	250	70	71	103	147	6.5	.72	2.8
15	8.1	24	912	38	300	70	54	100	84	5.0	.63	23
16	7.0	34	814	35	340	60	44	126	54	4.1	.55	27
17	8.9	69	530	32	360	55	37	726	37	3.3	.56	11
18	12	201	300	29	320	50	30	1390	29	2.7	.72	5.3
19	15	335	181	27	250	45	25	2080	26	2.2	.89	3.4
20	16	398	124	28	200	40	22	1990	51	2.0	50	2.5
21	34	456	98	30	160	40	20	1490	53	1.8	137	1.9
22	63	540	79	32	150	40	18	1090	34	1.5	207	1.7
23	52	619	68	37	160	50	17	824	22	1.3	228	1.7
24	35	613	60	41	170	60	15	515	16	1.1	135	1.5
25	23	455	54	45	160	70	17	229	12	.87	51	1.3
26	16	284	50	47	150	80	34	262	9.9	.75	25	1.1
27	18	201	47	46	130	90	47	203	7.9	.59	16	.91
28	35	193	46	43	130	95	36	173	6.1	1.1	11	.82
29	58	197	43	39	---	90	23	210	4.9	59	8.4	.72
30	69	198	40	36	---	80	16	249	6.9	197	6.4	.66
31	69	---	38	33	---	100	---	265	---	109	5.2	---

Table 30.--Mean-daily discharge for 1980 water year, in cubic feet per second, at Saline River near Rye (07363500)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	440	562	3240	4770	5790	1060	14900	2640	5960	183	111	41
2	364	500	2450	5080	5570	1010	14500	3020	3590	172	108	34
3	324	525	1660	5470	5010	969	13600	3760	1760	156	94	26
4	311	785	1250	5790	4020	946	12400	4410	1200	144	85	23
5	264	1140	1060	5770	3040	930	11100	4470	934	133	85	19
6	239	1270	934	5160	2560	917	9930	4070	762	126	90	17
7	221	1040	848	3890	2380	932	8890	3090	653	118	90	16
8	207	743	778	2640	2410	1030	7900	2230	572	110	85	16
9	191	615	730	2070	4610	1060	6850	1720	506	99	77	25
10	176	743	685	1830	6390	1040	5340	1370	449	93	69	22
11	164	821	647	1950	6830	982	3240	1290	404	86	62	16
12	153	811	628	2300	7140	1290	2120	1470	364	82	56	13
13	145	801	1090	2230	7130	2330	3660	2010	333	77	48	11
14	140	746	2850	2120	6940	2840	6640	3270	30[illegible]	73	43	10
15	136	669	3940	1940	6630	3160	8060	4330	279	69	38	8.6
16	135	628	4690	1770	6220	3540	8860	5730	258	66	34	7.8
17	131	575	5480	1770	5900	5820	9230	6990	241	61	33	6.2
18	127	525	6060	2060	5600	7480	9460	7350	225	56	38	7.0
19	122	482	6340	2240	5330	8360	9890	7310	216	51	47	12
20	118	441	6280	2290	4980	9110	10700	7240	206	47	48	38
21	114	432	6080	2280	4440	10000	11600	7370	199	46	46	65
22	131	1420	5850	3570	3610	10100	11800	8080	195	45	45	63
23	137	3040	5650	5660	2670	10100	11200	8680	216	41	43	59
24	127	3720	5930	6520	2060	11300	10200	9310	247	39	41	57
25	122	3790	6180	6830	1760	14700	9190	10000	249	35	40	59
26	122	3850	5900	6980	1540	16900	8220	10700	245	34	40	69
27	135	3950	5520	6890	1370	16500	7040	10800	234	53	41	74
28	144	3900	5250	6600	1230	15600	5240	10400	225	54	45	166
29	142	3820	5100	6160	1110	14500	3280	9550	208	53	47	331
30	146	3660	4880	5840	---	14700	2540	8610	193	59	48	861
31	295	---	4720	5810	---	14800	---	7530	---	91	47	---

Table 31.--Mean-daily discharge for 1981 water year, in cubic feet per second, at Saline River near Rye (07363500)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	255	1480	497	386	1480	2930	866	3610	404	179	96
2	1510	256	1450	473	493	1490	2760	701	3690	409	174	107
3	1680	282	1420	455	703	1590	2690	557	4850	393	183	106
4	1670	285	1320	437	1050	2160	2650	465	6000	772	163	101
5	1330	253	1150	414	1600	3050	2600	409	6320	1470	148	97
6	812	224	989	405	2020	3540	2650	360	8200	1930	146	98
7	506	200	845	419	2300	3830	2960	325	10300	2260	137	95
8	360	183	752	434	2490	4070	3130	310	12000	2560	133	95
9	281	165	763	443	2620	4260	3090	339	12900	2810	146	90
10	231	151	1160	472	2670	4460	2940	528	12500	2990	150	78
11	197	141	1930	498	2680	4670	2470	627	11600	3020	148	72
12	175	131	2530	496	2280	4870	1730	552	10700	2670	134	70
13	159	122	2860	484	2240	5040	1260	504	10000	1690	125	67
14	146	132	3040	462	2430	5040	1040	868	9460	969	116	66
15	138	163	3210	430	2640	4700	898	1530	8980	846	109	90
16	118	176	3380	400	2810	3590	806	1660	8410	795	107	117
17	122	412	3580	379	2990	1940	710	3290	7610	692	107	96
18	129	1300	3810	364	3160	1270	627	5030	6030	595	116	79
19	129	1950	3980	351	3220	1080	565	5510	3760	494	190	72
20	169	2400	3910	340	2890	988	522	5360	2490	415	454	67
21	278	2720	3040	338	2090	922	500	4970	2370	351	430	66
22	693	2920	1620	346	1540	1010	487	4340	2410	305	313	62
23	883	3100	1010	364	1440	1160	483	3740	2130	265	234	55
24	717	3280	853	407	1490	1320	518	3450	1480	236	178	51
25	503	3450	761	444	1700	1770	546	3470	974	194	147	60
26	377	3590	704	453	1920	2210	691	4210	732	221	129	69
27	329	3650	659	446	1920	2500	1090	4770	591	206	115	66
28	314	3400	624	438	1690	2650	1430	4580	495	191	104	61
29	287	2530	592	423	---	2750	1450	4020	425	210	96	55
30	250	1730	564	401	---	3320	1150	3560	371	198	91	51
31	247	---	531	379	---	3270	---	3510	---	186	89	---

Table 32.--Mean-daily discharge for 1980 water year, in cubic feet per second, at Ouachita River near Arkansas-Louisiana State line (07364100)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4290	3730	---	---	---	---	---	---	---	2990	957	913
2	4090	4960	---	---	---	---	---	---	---	3300	916	766
3	3420	5850	14900	---	---	---	---	---	---	2610	1020	711
4	2690	5700	14300	---	---	---	---	---	---	1800	996	802
5	3240	4070	13500	---	---	---	---	---	---	1210	1040	792
6	4100	2730	11700	---	---	12100	---	---	---	1330	890	694
7	4050	2950	9860	---	---	11900	---	---	---	1520	1050	634
8	3570	3100	9090	---	---	11700	---	---	---	1670	972	714
9	2510	4390	7340	---	---	8470	---	---	---	1580	778	856
10	1460	5940	5440	---	---	9360	---	---	---	1580	968	734
11	1600	6990	6060	---	---	9450	---	---	---	1790	999	899
12	2020	8280	6040	---	---	8700	---	---	---	2570	926	883
13	2150	8690	6270	---	---	9250	---	---	---	1950	942	805
14	2160	8530	7150	---	---	13600	---	---	---	2340	982	839
15	2520	6850	11400	---	---	15100	---	---	---	2900	1440	842
16	3030	5680	14100	14600	---	15600	---	---	---	2720	1770	846
17	2860	5680	14700	13700	---	---	---	---	---	2800	1930	802
18	3020	5180	15300	12900	---	---	---	---	9560	2980	1880	849
19	2350	4860	15800	12800	---	---	---	---	9540	3120	1730	938
20	1900	3610	15900	13300	---	---	---	---	7900	2820	1400	1170
21	1880	1640	15800	14000	---	---	---	---	5580	2490	1260	1140
22	2700	1740	15400	15100	---	---	---	---	3500	1770	1210	1100
23	3180	8520	15100	---	---	---	---	---	2780	1000	1150	996
24	3120	12900	4900	---	---	---	---	---	2750	802	1130	889
25	3250	14800	15300	---	---	---	---	---	2930	755	1200	1030
26	3220	16000	---	---	---	---	---	---	2870	922	1220	989
27	2910	---	---	---	---	---	---	---	3580	534	1170	986
28	2670	---	---	---	---	---	---	---	3740	470	1090	982
29	1940	---	---	---	---	---	---	---	2940	782	1030	2110
30	1630	---	---	---	---	---	---	---	2810	840	1090	4970
31	2860	---	---	---	---	---	---	---	---	812	1120	---

Table 33.--Mean-daily discharge for 1981 water year, in cubic feet per second, at Ouachita River near Arkansas-Louisiana State line (07364100)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4290	3730	---	---	---	---	---	---	---	2990	957	913
1	8010	3200	11300	2620	2310	7620	10100	7210	---	---	4950	1850
2	11300	3160	9790	2580	2360	8060	12800	7220	---	---	6450	1830
3	12900	3040	8140	2640	2600	10100	13500	7240	---	---	7540	1840
4	13200	2860	6920	2570	6560	13500	13800	7110	---	---	9010	1850
5	13700	2280	5970	2460	8160	13200	13900	6290	---	---	6940	1830
6	14000	1900	5750	2410	8370	14400	13800	4340	---	---	5290	1770
7	13700	2000	5700	2400	8310	15000	13600	4230	---	---	4690	1800
8	10100	2020	5520	2470	8260	---	13300	4130	---	---	3820	1830
9	6440	1930	5220	2780	6110	---	12700	3890	---	---	3540	1730
10	4020	1890	6110	3020	5580	---	10500	3800	---	---	4470	1630
11	3500	1790	8780	3580	7040	---	10800	4390	---	---	4280	1540
12	3240	1760	12300	3970	9580	---	11000	6130	---	---	2900	1520
13	3120	1650	13700	3730	12100	---	9410	7410	---	---	1770	1590
14	2860	1560	14300	3430	13700	---	8680	8610	---	---	1920	1690
15	2160	1570	14800	3320	13800	14200	8400	8460	---	13400	2820	2190
16	1690	3470	15200	2840	13700	13600	7210	8860	---	11600	3380	2390
17	1760	7690	15600	2590	13000	12700	6040	11400	---	8750	3320	2350
18	1690	10400	---	2790	9560	11400	5840	14100	---	8330	3240	2000
19	1720	12500	---	3410	9560	9250	5340	---	---	7420	3030	1750
20	3680	13500	---	3650	9390	9660	3750	---	---	5440	2990	1680
21	5290	14000	15000	3520	8990	9190	3000	---	---	3940	3250	1620
22	4050	14500	14000	3310	8670	7890	2220	---	---	3410	3300	1560
23	3000	14900	13200	2910	7560	6860	2600	---	---	2480	3080	1500
24	2270	15200	10700	2570	6860	6200	3800	---	---	1840	2540	1470
25	1950	15300	9050	2710	7900	5640	4150	---	---	1960	1900	1480
26	1940	15200	8250	2740	8370	5670	5250	---	---	2050	1960	1540
27	2350	14700	5630	2560	8230	6370	6290	---	---	2050	1870	1540
28	2980	13900	4180	2460	7920	6520	6580	---	---	2130	1790	1600
29	2850	13500	3850	2400	---	6350	6690	---	---	2500	1830	1950
30	2810	13200	3560	2310	---	6480	6680	---	---	2660	1860	1850
31	3060	---	3020	2280	---	7480	---	---	---	2910	1860	---

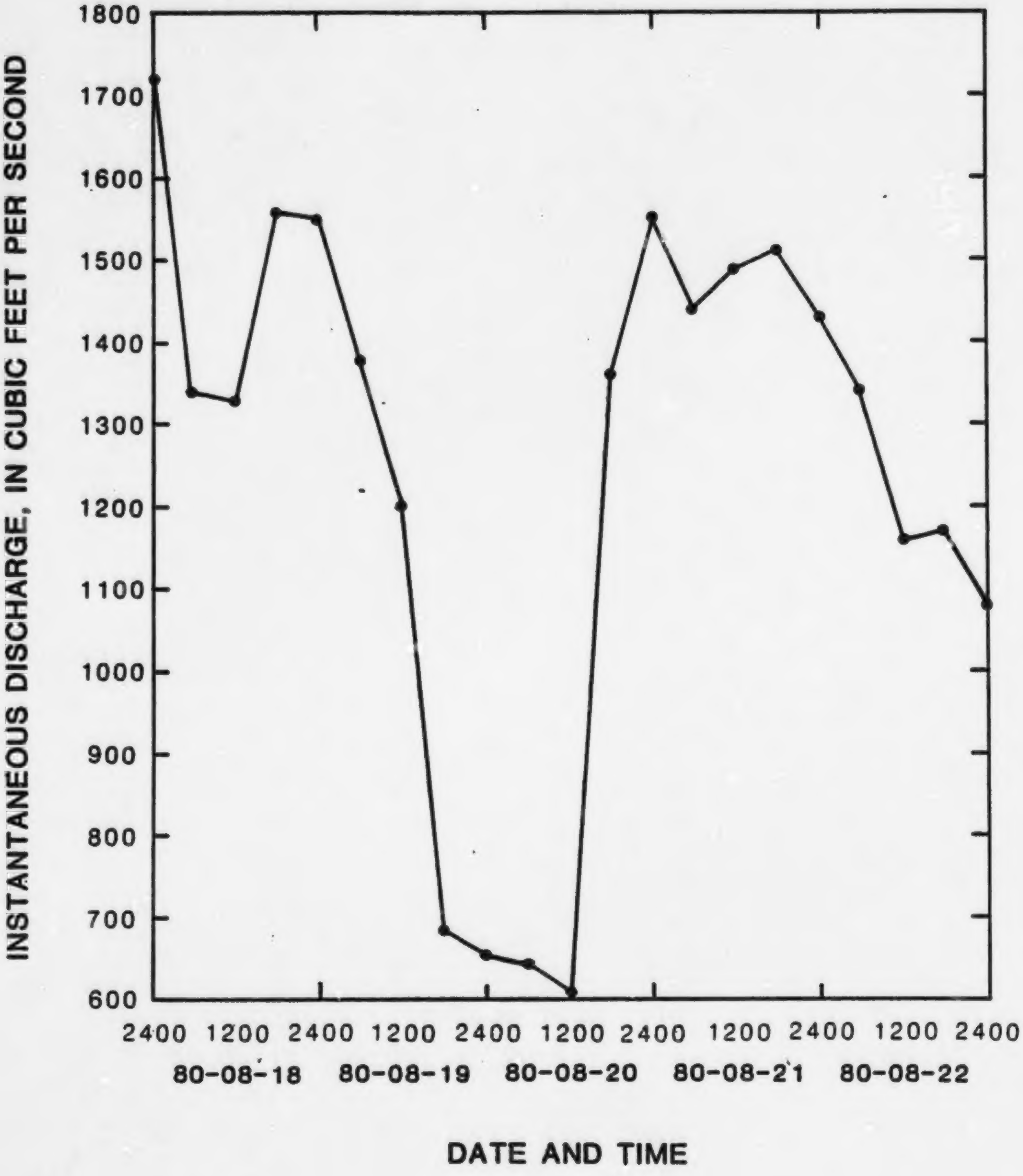


Figure 13.--Instantaneous discharge at site OU11, Ouachita River at Camden, during the 1980 sampling period.

Table 34.--Lower Ouachita River chemical and physical water-quality data

[Five digit numbers in parentheses are STORET parameter codes used in computer storage of data, E = estimated value]

SITE NUMBER	RIVER MILE	DATE OF SAMPLE	TIME	COLLECTING AGENCY	STREAMFLOW, INSTANTANEOUS (FT3/S) (00061)	PH (STANDARD UNITS (00400)
OU1	380.7	80-08-18	1315	USGS	—	7.2
		81-09-14	1050	do	1.8	7.2
OU2T	380.6	80-08-18	1245	do	47	7.3
		81-09-14	1205	do	105	7.3
OU3	379.6	80-08-18	1205	do	1510	7.3
		81-09-14	1320	do	—	7.1
OU4T	379.2	80-08-18	—	do	.00	—
		81-09-14	—	do	E.30	—
OU5	368.1	80-08-18	1720	do	1660	7.3
		81-09-14	1700	do	—	7.2
OU6T	366.4	80-08-18	1600	do	6.5	6.8
		81-09-14	1550	do	23	6.4
OU7	362.6	80-08-19	1300	do	916	7.3
		81-09-15	1220	do	2370	7.0
OU8T	362.3	80-08-18	1645	do	E.40	6.5
		81-09-14	1855	do	8.6	6.9
OU9	358.6	80-08-19	1530	do	—	7.3
		81-09-15	1105	do	—	7.0
OU10T	357.6	80-08-19	—	do	.00	—
		81-09-15	0900	do	6.7	6.5
OU11	354.1	80-08-19	1330	do	779	7.3
		80-09-04	1230	do	394	7.2
		80-09-25	0930	do	986	—
		80-10-15	1300	do	513	7.2
		80-11-20	1400	do	23400	6.9
		80-12-11	1200	do	13900	7.0
		81-01-14	1130	do	4310	7.1
		81-02-10	1200	do	2810	7.0
		81-03-12	1200	do	5940	7.2
		81-04-08	1300	do	3370	6.7
		81-05-06	0930	do	3990	7.4
		81-06-11	1000	do	38900	7.0
		81-07-09	0915	do	11100	6.8
		81-08-05	1115	do	4420	—
		81-09-02	1100	do	1510	7.5
		81-09-16	1225	do	1570	7.0
OU12T	354.0	80-08-19	1415	do	E.15	6.7
		81-09-16	1210	do	37	6.3
OU13	351.1	80-08-18	1130	do	—	7.1
		81-09-15	1605	do	—	6.9

Table 34.--Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	RIVER MILE	DATE OF SAMPLE	TIME	COLLECTING AGENCY	STREAMFLOW, INSTANTANEOUS (FT3/S) (00061)	PH (STANDARD UNITS (00400)
OU14T	347.3	81-09-16	0850	USGS	39	6.2
OU15	347.1	80-08-20	0950	do	—	7.2
		81-09-16	0945	do	—	7.0
TB10	346.8	80-08-20	1110	do	14	6.7
		81-09-16	1020	do	32	7.4
OU16	345.6	80-08-20	1240	do	1040	7.1
		81-09-16	1050	do	—	7.0
OU17	340.1	80-08-18	1330	do	1400	7.3
		81-09-14	1600	do	—	7.2
OU18T	332.0	80-08-20	—	do	.00	—
		81-09-15	1745	do	.00	—
OU19	329.4	80-08-18	1600	do	1650	7.2
		81-09-14	1530	do	2480	7.1
OU20	322.0	80-08-18	1750	do	—	7.1
		81-09-14	1435	do	—	7.0
OU21T	318.3	80-08-19	—	do	.00	—
		81-09-14	1030	do	.00	—
OU22	317.3	80-08-19	1400	do	1750	7.4
		81-09-14	1045	do	—	6.9
SM36	313.6	80-08-21	1625	do	—	7.5
		81-09-15	1130	do	—	7.0
OU23	312.1	80-08-21	1700	do	—	7.7
		81-09-15	1145	do	—	6.9
OU24T	310.9	80-08-18	—	do	.00	—
	309.9	80-09-14	1400	do	.00	—
OU25		80-08-18	1330	do	1730	7.6
		81-09-15	1315	do	—	7.0
OU26T	309.4	80-08-18	—	do	.00	—
		81-09-14	1415	do	.00	—
OU27	308.6	80-08-21	1740	do	—	7.7
		81-09-15	1200	do	—	7.0
OU29	298.5	80-08-18	1600	do	1850	7.0
		80-08-19	1550	ADPCE	—	7.2
		80-09-16	1425	do	—	7.3
		80-10-14	1640	do	—	7.2
		80-11-18	1530	do	—	6.7
		81-02-24	0920	do	—	7.1
		81-03-24	0910	do	—	7.0
		81-04-21	0845	do	—	7.1
		81-08-18	0920	do	—	7.0
		81-09-08	0800	do	—	7.3
		81-09-15	1245	USGS	—	7.1

Table 34.--Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	RIVER MILE	DATE OF SAMPLE	TIME	COLLEC-TING AGENCY	STREAM-FLOW, INSTAN-TANEOUS (FT3/S) (00061)	PH (STAND-ARD UNITS (00400)
OU30T	296.3	80-08-22	1900	USGS	1.8	3.8
		81-09-17	1000	do	1.3	3.8
OU31	288.2	80-08-18	1630	do	—	7.2
		81-09-14	1510	do	—	7.1
OU32T	287.4	80-08-22	0840	do	—	6.0
		81-09-14	1830	do	—	7.4
OU33	287.4	80-08-18	1545	do	—	7.0
		81-09-14	1530	do	2390	7.1
OU34	281.6	80-08-18	1800	do	1830	7.0
		81-09-15	1430	do	—	7.1
OU35	264.6	80-08-22	1645	do	—	6.5
		81-09-14	1400	do	—	7.0
OU36T	255.5	80-08-22	1730	do	—	6.9
		81-09-14	1415	do	—	7.3
OU37	252.9	80-08-19	1630	do	—	8.0
		81-09-15	2400	do	1770	7.1
OU39T	246.3	80-08-18	—	do	.00	—
		81-09-14	1715	do	.40	6.5
OU38T	246.3	80-08-18	—	do	.00	—
		81-09-14	1700	do	.00	—
OU40	243.0	80-08-19	1530	do	1560	7.6
		81-09-19	1400	do	—	7.7
OU41	239.3	80-08-19	1445	do	E1730	7.3
		80-09-16	1305	ADPCE	—	6.0
		80-10-07	1310	do	—	6.7
		80-11-04	1300	do	—	7.0
		80-12-09	0945	do	—	7.0
		81-03-17	0830	do	—	6.9
		81-04-07	0830	do	—	7.0
		81-05-12	0830	do	—	7.2
		81-07-07	0830	do	—	6.7
		81-09-08	0820	do	—	6.9
		81-09-15	0700	USGS	E2190	7.0

Table 34.—Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (UMHOS) (00095)	SOLIDS, RESIDUE AT 180 DEG C DISSOLVED (MG/L) (70300)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 105 DEG C, SUSPENDED (MG/L) (00530)
OU1	80-08-18	138	78	15	14	18
	81-09-14	180	103	25	23	12
OU2T	80-08-18	46	28	2.5	3.2	17
	81-09-14	130	83	13	6.0	6
OU3	80-08-18	—	—	—	—	21
	81-09-14	174	99	>10	22	9
OU4T	80-08-18	110	59	12	12	17
	81-09-14	171	97	31	22	6
OU6T	80-08-18	52	46	4.5	1.7	7
	81-09-14	35	45	3.5	5.0	3
OU7	80-08-19	106	85	20	14	15
	81-09-15	171	96	28	19	8
OU8T	80-08-18	77	48	8.9	4.4	6
	81-09-14	67	45	10	<5.0	9
OU9	80-08-19	108	59	13	11	16
	81-09-15	170	94	25	19	20
OU10T	81-09-15	49	50	6.5	<5.0	46
OU11	80-08-19	107	82	18	17	—
	80-09-04	110	67	16	12	—
	80-10-15	100	77	10	9.1	—
	80-11-20	64	55	4.4	9.2	—
	80-12-11	75	80	15	6.1	—
	81-01-14	93	48	10	11	—
	81-02-10	80	49	5.5	11	—
	81-03-12	88	81	7.1	14	—
	81-04-08	70	59	7.5	3.3	—
	81-05-06	99	85	11	2.9	—
	81-06-11	69	53	4.2	1.8	—
	81-07-09	68	51	5.0	2.4	—
	81-08-05	104	84	13	2.0	—
	81-09-02	125	74	20	<5.0	—
	81-09-16	174	95	23	18	4
OU12T	80-08-19	125	84	20	4.5	16
	81-09-16	66	56	8.9	<5.0	245
OU13	80-08-18	134	77	15	19	32
	81-09-15	165	94	31	18	9
OU14T	81-09-16	465	253	120	<5.0	116
OU15	80-08-20	150	132	19	22	18
	81-09-16	174	93	28	14	12
TB10	80-08-20	1700	1190	75	420	30
	81-09-16	783	504	32	50	31

Table 34.--Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (UMHOS) (00095)	SOLIDS, RESIDUE AT 180 DEG C DISSOLVED (MG/L) (70300)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 105 DEG C, SUSPENDED (MG/L) (00530)
OU16	80-08-20	150	100	19	23	18
	81-09-16	180	103	35	19	11
OU17	80-08-18	100	59	8.1	15	20
	81-09-14	159	139	50	20	7
OU19	80-08-18	121	68	10	18	16
	81-09-14	136	82	12	11	9
OU20	80-08-18	138	80	13	22	13
	81-09-14	142	88	16	12	12
OU22	80-08-19	142	83	13	29	18
	81-09-14	136	93	13	10	8
SM36	80-08-21	290	149	53	21	2
	81-09-15	326	186	75	6.0	8
OU23	80-08-21	—	105	24	23	8
	81-09-15	164	93	24	9.0	14
OU25	80-08-18	200	107	29	24	16
	81-09-15	162	96	26	8.0	11
OU27	80-08-21	290	104	25	24	8
	81-09-15	176	95	36	8.0	11
OU29	80-08-18	224	115	30	28	11
	80-08-19	262	152	70	35	—
	80-09-16	204	128	—	21	13
	80-10-14	—	—	77	18	13
	80-11-18	—	113	—	10	10
	81-01-27	—	168	64	—	8
	81-02-24	—	174	69	—	14
	81-03-24	—	135	65	11	9
	81-04-21	—	—	63	13	10
	81-07-21	—	462	42	12	18
	81-08-18	—	127	33	—	17
	81-09-08	—	—	—	10	8
	81-09-15	321	174	79	6.0	10
OU30	80-08-22	37000	239000	14000	8.3	12
	81-09-17	18000	8680	5200	32	1
OU31	80-08-18	231	119	31	25	11
	81-09-14	300	172	65	7.0	10
OU32T	80-08-22	321	210	77	27	54
	81-09-14	290	167	58	6.0	2
OU33	80-08-18	227	120	32	26	14
	81-09-14	302	175	62	8.0	13

Table 34.—Lower Ouachita River chemical and physical water-quality data—Continued

SITE NUMBER	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (UMHOS) (00095)	SOLIDS, RESIDUE AT 180 DEG C DISSOLVED (MG/L) (70300)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 105 DEG C, SUSPENDED (MG/L) (00530)
OU34	80-08-18	225	115	33	24	13
	81-09-15	281	163	64	<5.0	4
OU35	80-08-22	231	197	41	25	10
	81-09-14	279	176	>10	6.0	7
OU36T	80-08-22	325	1310	72	21	10
	81-09-14	240	139	51	8.0	3
OU37	80-08-19	270	154	56	18	78
	81-09-15	284	163	63	<5.0	5
OU39T	81-09-14	672	365	180	<5.0	26
OU40	80-08-19	328	192	78	14	21
	81-09-19	306	179	65	<5.0	6
OU41	80-08-19	322	187	75	14	22
	80-09-16	219	135	—	15	12
	80-10-07	142	94	23	14	32
	80-11-04	322	201	76	17	22
	80-12-09	144	123	—	20	13
	81-03-03	—	122	36	11	16
	81-03-17	121	88	20	9.0	12
	81-04-07	149	105	30	13	14
	81-05-12	310	199	77	7.0	14
	81-07-07	—	—	—	8.0	—
	81-08-04	168	134	17	28	27
	81-09-08	176	117	34	9.0	14
	81-09-15	231	138	63	8.0	7

Table 34.--Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
OU1	80-08-18	0.33	0.000	0.000	0.460	0.000	0.030
	81-09-14	1.1	.200	.020	.610	<.010	.030
OU2T	80-08-18	.39	.000	.000	.110	.010	.040
	81-09-14	.75	.120	.010	.100	<.010	.040
OU3	81-09-14	.49	.220	.050	.650	.020	.020
OU5	80-08-18	1.8	.000	.010	.400	.010	.030
	81-09-14	.85	.130	.020	.600	<.010	.020
OU6T	80-08-18	.46	.010	.000	.040	.010	.040
	81-09-14	.59	.150	.000	.070	<.010	.030
OU7	80-08-19	.40	.000	.020	.340	.000	.030
	81-09-15	.82	.130	.030	.550	.040	.040
OU8T	80-08-18	.49	.000	.000	.000	.020	.060
	81-09-14	.85	.090	.000	.030	.010	.060
OU9	80-08-19	.59	.000	.020	.350	.000	.040
	81-09-15	.75	.150	.020	.550	.010	.030
OU10T	81-09-15	.98	.120	.020	.000	<.010	.000
OU11	80-08-19	.47	.000	.000	.510	.010	.040
	80-09-04	.65	.000	—	.060	—	.040
	80-10-15	.33	.020	—	.370	—	.040
	80-11-20	.81	.010	—	.210	—	.080
	80-12-11	.79	.040	—	.140	—	.080
	81-01-14	.81	.030	—	.330	—	.050
	81-02-10	1.0	.060	—	.230	—	.030
	81-03-12	.52	.160	—	.440	—	.080
	81-04-08	1.9	.050	—	.210	—	.080
	81-05-06	.40	.090	—	.500	—	.060
	81-06-11	.75	.120	—	.160	—	.080
	81-07-09	.92	.080	—	.260	—	.080
	81-08-05	.34	.200	—	.370	—	.100
	81-09-02	.59	<.060	—	.160	—	.070
	81-09-16	.70	.080	.020	.600	.050	.030
OU12T	80-08-19	.52	.160	.030	.350	.050	.090
	81-09-16	.88	.120	.010	.040	.100	.180
OU13	80-08-18	.44	.000	.010	.670	.000	.050
	81-09-15	.65	.120	.020	.530	.010	.060
OU14T	81-09-16	.96	.140	.010	.060	.260	.240
OU15	80-08-20	.82	.000	.010	.520	.000	.030
	81-09-16	.67	.150	.020	.570	.080	.050
TB10	80-08-20	8.8	4.20	.000	.000	.280	.660
	81-09-16	5.0	5.00	.080	.030	.300	.580

Table 34.--Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
OU16	80-08-20	0.76	0.120	0.020	0.530	0.000	0.050
	81-09-16	.70	.220	.020	.550	.070	.040
OU17	80-08-18	2.2	.100	.010	.390	.010	.050
	81-09-14	.66	.270	.030	.430	.020	.020
OU19	80-08-18	.57	.020	.010	.570	.010	.040
	81-09-14	.67	.220	.000	.230	<.010	.030
OU20	80-08-18	.56	.020	.010	.700	.010	.060
	81-09-14	.68	.320	.010	.260	<.010	.040
OU22	80-08-19	.53	.030	.030	.760	.010	.050
	81-09-14	.84	.260	.010	.250	<.010	.050
SM36	80-08-21	1.0	.000	.020	.520	.000	.040
	81-09-15	.71	.090	.010	.180	.010	.030
OU23	80-08-21	.99	.000	.020	.600	.000	.060
	81-09-15	.71	.230	.010	.260	.030	.060
OU25	80-08-18	.65	.000	.010	.700	.010	.050
	81-09-15	.94	.160	.010	.270	.030	.060
OU27	80-08-21	.79	.000	.020	.600	.000	.040
	81-09-15	.79	.160	.010	.270	.020	.050
OU29	80-08-18	.53	.010	.010	.830	.020	.030
	80-08-19	—	.060	.010	.950	—	.050
	80-09-16	—	—	.040	.190	—	.040
	80-10-14	—	.110	—	.520	.100	.030
	80-11-18	—	.060	—	.280	.030	.150
	81-01-27	—	.130	—	.240	<.010	.030
	81-02-24	—	.080	—	.200	.010	.060
	81-03-24	—	.120	—	.290	.010	.040
	81-04-21	—	.110	—	.370	<.010	.040
	81-07-21	—	.080	—	.370	.010	.070
	81-08-18	—	.170	—	.540	<.010	.060
	81-09-08	—	.060	—	—	.010	.010
	81-09-15	.72	.140	.010	.200	.020	.030
OU30T	80-08-22	3.7	6.30	.010	.080	.000	.000
	81-09-17	.00	<.060	.000	.130	.010	<.010
OU31	80-08-18	.58	.130	.010	.600	.010	.040
	81-09-14	.61	.170	.010	.190	<.010	.020
OU32T	80-08-22	.59	.100	.010	.000	.010	.090
	81-09-14	.70	.110	.010	.130	.000	.030
OU33	80-08-18	—	.040	.010	.570	.010	.040
	81-09-14	.70	.150	.010	.190	<.010	.040
OU34	80-08-18	.91	.050	.020	.610	.020	.040
	81-09-15	.50	.120	.010	1.69	.000	.030

Table 34.--Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
OU35	80-08-22	0.82	0.000	0.010	0.470	0.010	0.040
	81-09-14	.56	.200	.040	.270	.030	.020
OU36T	80-08-22	1.0	.000	.010	.230	.010	.040
	81-09-14	.64	.210	.030	.190	.020	.020
OU37	80-08-19	.68	.030	.030	.150	.010	.060
	81-09-15	.73	.160	.000	.350	.000	.030
OU39T	81-09-14	.92	.180	.000	.030	<.010	.030
OU40	80-08-19	.77	.000	.020	.050	.010	.050
	81-09-19	.75	.060	.020	.340	.020	.040
OU41	80-08-19	1.0	.000	.020	.120	.010	.050
	80-09-16	—	—	.010	.190	—	.040
	80-10-07	.81	.090	—	.540	<.010	.060
	80-11-04	—	.180	—	.450	.010	.040
	80-12-09	1.0	.170	—	.280	<.010	—
	81-03-03	—	—	—	.180	—	—
	81-03-17	—	.040	—	.160	.010	.050
	81-04-07	.66	.040	—	.190	.020	—
	81-05-12	—	—	—	.280	.010	.050
	81-07-07	—	.130	—	.260	.030	.080
	81-08-04	1.4	.060	—	.230	.060	.050
	81-09-08	.33	.070	—	.310	<.010	.030
	81-09-15	.75	.180	.000	.440	.000	.040

Table 34.--Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L) (00320)	DEOXYGE-NATION CARBON K1 TO BASE E /DAY AT 20 DEG C (82133)	STREAMBED OXYGEN DEMAND [(G/M2)/DAY AT 20 DEG C]
OU1	80-08-18	0.40	5.4	11	2.5	0.29	--
	80-09-12	--	--	--	--	--	1.4
	81-09-14	.60	3.6	46	2.9	.18	--
OU2T	80-08-18	.40	5.3	11	3.2	.25	--
	81-09-14	<.10	6.5	47	3.3	.17	--
OU3	80-08-18	--	--	--	2.8	.19	--
	81-09-14	.30	3.7	51	2.5	.16	--
OU5	80-08-18	--	--	--	2.3	.28	--
	80-08-18	--	--	8	--	--	--
	81-09-14	--	--	47	3.0	.12	--
OU6T	80-08-18	.50	12	15	2.4	.23	--
	81-09-14	.10	7.1	56	2.9	.16	--
OU7	80-08-19	.20	4.5	9	2.7	.35	--
	81-09-15	.30	3.2	53	2.2	.19	--
OU8T	80-08-18	1.0	4.6	11	3.0	.26	--
	81-09-14	.70	7.8	36	4.4	.19	--
OU9	80-08-19	--	--	9	2.4	.29	--
	81-09-15	--	--	46	3.2	.20	--
OU10T	81-09-15	.40	14	65	2.5	.22	--
OU11	80-08-19	.20	4.2	9	2.4	.30	--
	80-09-12	--	--	--	--	--	1.5
	80-10-15	.30	4.9	--	--	--	--
	81-01-14	--	5.8	--	--	--	--
	81-04-08	.20	10	--	--	--	--
	81-07-09	--	6.2	--	--	--	--
	81-09-16	.30	3.8	59	2.5	.16	--
OU12T	80-08-19	--	--	9	3.4	.28	--
	81-09-16	--	--	62	4.9	.14	--
OU13	80-08-18	--	--	13	3.2	.34	--
	81-09-15	--	--	44	5.1	.14	--
OU14T	81-09-16	--	--	120	4.0	.14	--
OU15	80-08-20	.50	5.5	12	3.7	.17	--
	81-09-16	.40	9.9	55	2.2	.18	--
TB10	80-08-20	1.4	85	350	>20	--	--
	81-09-16	3.3	75	170	15	.07	--
OU16	80-08-20	--	--	19	3.6	.21	--
	81-09-16	.40	9.3	51	2.3	.16	--
OU17	80-08-18	.60	5.0	15	2.7	.19	--
	80-09-11	--	--	--	--	--	1.7
	81-09-14	.20	5.6	53	2.2	.16	--

Table 34.--Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L) (00320)	DEOXYGE-NATION CARBON K1 TO BASE E /DAY AT 20 DEG C (82133)	STREAMBED OXYGEN DEMAND [(G/M2)/DAY AT 20 DEG C]
OU19	80-08-18	0.60	5.2	14	2.6	0.24	—
	81-09-14	.30	4.6	55	2.1	.13	—
OU20	80-08-18	—	—	17	3.4	0.14	—
	81-09-14	—	—	51	3.1	.18	—
OU22	80-08-19	—	—	9	3.5	.22	—
	81-09-14	—	—	47	3.3	.30	—
SM36	80-08-21	—	—	23	6.0	.17	—
	81-09-15	0.70	5.3	77	3.5	.22	—
OU23	80-08-21	—	—	17	5.3	.22	—
	81-09-15	—	—	54	1.9	.27	—
OU25	80-08-18	1.6	4.4	16	2.9	.21	—
	81-09-15	.60	6.2	64	2.6	.21	—
OU27	80-08-21	—	4.7	17	5.9	.16	—
	80-10-23	—	—	—	—	—	0.7
	81-09-15	.40	5.8	53	2.8	.15	.6
OU29	80-08-18	—	—	13	3.5	.17	—
	81-09-15	—	—	79	2.3	.22	—
OU30T	80-08-22	.40	11	280	2.7	.32	—
	81-09-17	.20	5.6	900	2.5	.05	—
OU31	80-08-18	—	—	—	2.9	.24	—
	80-08-18	—	—	13	—	—	—
	81-09-14	—	—	73	1.7	.13	—
OU32T	80-08-22	1.5	11	29	—	—	—
	80-08-22	—	—	—	4.0	.18	—
	81-09-14	.40	5.6	75	3.7	.14	—
OU33	80-08-18	.30	5.6	15	2.9	.18	—
	80-10-23	—	—	—	—	—	.5
	81-09-14	.30	4.4	76	2.3	.12	.3
OU34	80-08-18	—	—	15	3.0	.20	—
	81-09-15	—	—	74	1.8	.26	—
OU35	80-08-22	—	—	16	4.7	.09	—
	81-09-14	—	—	69	1.6	.15	—
OU36T	80-08-22	—	8.7	—	4.9	.13	—
	81-09-14	.50	5.0	65	2.9	.20	—
OU37	80-08-19	—	—	21	8.1	.15	—
	80-10-23	—	—	—	—	—	1.5
	81-09-15	—	—	76	2.0	.23	1.1
OU39T	81-09-14	.70	10	130	4.6	.15	—
OU40	80-08-19	—	—	17	4.4	.23	—
	81-09-19	—	—	61	4.9	.12	—

Table 34.--Lower Ouachita River chemical and physical water-quality data--Continued

SITE NUMBER	DATE OF SAMPLE	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIOCHEM ULT. CARBON-ACEOUS (MG/L) (00320)	DEOXYGE-NATION CARBON K1 TO BASE E /DAY AT 20 DEG C (82133)	STREAMBED OXYGEN DEMAND [(G/M2)/DAY AT 20 DEG C]
OU41	80-08-19	0.30	6.0	17	4.2	0.24	--
	80-08-19	--	--	--	5.3	.14	--
	81-09-15	.40	5.5	64	2.9	.17	.6

Table 35.—Lower Ouachita River temperature and dissolved oxygen data

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATUR-ATION) (00301)
OU1	80-08-18	1315	27.5	7.3	92
	80-08-18	2345	27.5	7.1	90
	80-08-19	0645	27.5	7.1	90
	81-09-14	1050	25.5	7.0	85
OU2T	80-08-18	1245	28.5	7.3	95
	80-08-18	2345	27.5	7.1	90
	80-08-19	0645	27.5	7.1	90
	81-09-14	1205	26.5	6.6	82
OU3	80-08-18	1205	28.0	7.5	96
	81-09-14	1320	25.5	7.1	87
OU5	80-08-18	1720	29.0	8.9	87
	81-09-14	1700	26.0	7.5	92
	81-09-18	0930	22.0	7.6	87
	81-09-18	1240	24.0	8.1	96
	81-09-18	1905	23.5	8.3	98
	81-09-19	0030	22.0	8.3	98
OU6T	80-08-18	1600	28.0	5.2	67
	80-08-19	0700	26.5	4.1	51
	80-08-19	2325	26.5	4.2	53
	81-09-14	0010	22.5	5.9	69
	81-09-14	1550	22.5	6.2	72
	81-09-15	0640	22.5	5.9	69
OU7	80-08-19	1300	28.5	6.7	87
	81-09-15	1220	25.5	7.1	87
OU8T	80-08-18	1645	29.0	6.1	79
	80-08-19	0100	27.0	4.7	59
	80-08-19	0720	25.0	2.9	35
	81-09-14	1855	23.0	5.9	69
	81-09-14	2335	23.0	4.7	55
	81-09-15	0605	22.0	4.2	48
OU9	80-08-19	1530	30.0	7.7	103
	81-09-15	1105	25.0	7.1	87
	81-09-15	2320	26.5	7.1	89
	81-09-16	0625	25.5	7.3	89
OU10T	81-09-15	0900	24.5	6.2	75
	81-09-15	2255	25.0	5.9	69
	81-09-16	0600	24.0	5.8	69
OU11	80-08-19	2230	30.0	7.4	99
	80-08-20	0555	29.0	7.4	96
	80-09-04	1230	30.0	8.5	110

Table 35.--Lower Ouachita River temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATUR-ATION) (00301)
OU11	80-09-25	0930	25.0	--	--
	80-10-15	1300	20.0	8.5	93
	80-11-20	1400	8.0	9.5	81
	80-12-11	1200	11.0	9.4	85
	81-01-14	1130	5.0	11.1	87
	81-02-10	1200	7.5	10.8	90
	81-03-12	1200	11.0	11.0	100
	81-04-08	1300	18.0	8.8	94
	81-05-06	0930	13.0	8.6	82
	81-06-11	1000	22.0	5.7	66
	81-07-09	0915	23.5	7.3	86
	81-09-02	1100	26.0	6.9	85
	81-09-05	1115	27.5	6.7	85
	81-09-16	1225	26.0	7.4	91
	81-09-16	2250	25.5	7.1	87
	81-09-18	0845	23.0	7.2	71
	81-09-18	1200	23.5	7.6	89
	81-09-18	1830	23.5	8.1	95
	81-09-18	2340	23.0	8.3	97
	81-09-19	0200	23.0	8.0	93
	81-09-19	0800	22.0	8.0	92
	81-09-23	1045	23.0	8.2	95
	81-09-23	1145	23.0	8.1	94
	81-09-23	1245	23.0	8.0	93
	81-09-23	1345	23.5	8.1	95
	81-09-23	1445	23.5	8.2	96
	81-09-23	1545	24.0	8.3	99
	81-09-23	1645	24.0	8.4	100
	81-09-23	1745	24.0	8.5	101
	81-09-23	1845	24.0	8.5	101
	81-09-23	1945	24.0	8.6	102
	81-09-23	2045	24.0	8.6	102
	81-09-23	2145	24.0	8.5	101
	81-09-23	2245	24.0	8.5	101
	81-09-23	2345	24.0	8.5	101
	81-09-24	0045	24.0	8.5	101
	81-09-24	0145	24.0	8.4	100
	81-09-24	0245	24.0	8.4	100

Table 35.—Lower Ouachita River temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATUR-ATION) (00301)
OU11	81-09-24	0345	24.0	8.3	100
	81-09-24	0445	24.0	8.2	99
	81-09-24	0545	24.0	8.1	96
	81-09-24	0645	24.0	8.1	96
	81-09-24	0745	24.0	8.0	95
	81-09-24	0845	24.0	7.9	94
	81-09-24	0945	24.0	7.4	88
	81-09-24	1045	24.0	7.8	93
	81-09-24	1145	24.0	7.7	92
	81-09-24	1245	24.0	7.6	90
	81-09-24	1345	24.0	7.8	93
	81-09-24	1445	24.0	7.9	94
	81-09-24	1545	24.0	8.0	95
	81-09-24	1645	24.0	8.1	96
	81-09-24	1745	24.5	8.1	98
	81-09-24	1845	24.5	8.2	99
	81-09-24	1945	24.5	8.3	100
	81-09-24	2045	24.5	8.4	101
	81-09-24	2145	24.5	8.4	101
	81-09-24	2245	25.0	8.3	100
	81-09-24	2345	24.5	8.2	99
	81-09-25	0045	24.5	8.1	98
	81-09-25	0145	24.0	8.0	96
	81-09-25	0245	24.0	7.9	95
	81-09-25	0345	24.0	7.9	95
	81-09-25	0445	24.0	7.8	94
	81-09-25	0545	24.0	7.7	93
	81-09-25	0645	24.0	7.7	93
	81-09-25	0745	24.0	7.7	93
	81-09-25	0845	23.5	7.7	91
	81-09-25	0945	23.5	7.3	86
	81-09-25	1045	23.5	7.7	93
	81-09-25	1125	24.0	7.9	93
OU12T	80-08-19	1415	28.0	3.[illegible]	41
	80-08-19	2240	26.0	2.0	25
	80-08-20	0610	24.5	1.1	14
	81-09-16	1210	23.0	6.1	66
	81-09-16	2240	22.5	5.7	66
	81-09-17	0630	20.0	6.2	68

Table 35.—Lower Ouachita River temperature and dissolved oxygen data—Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OU13	80-08-18	1130	29.0	7.9	103
	80-08-18	2400	29.0	7.9	103
	80-08-19	0610	29.0	7.2	94
	81-09-15	1605	26.0	7.2	89
OU14T	81-09-16	0850	22.0	6.2	71
OU15	80-08-20	0950	29.0	7.3	95
	81-09-16	0945	22.5	7.0	81
TB10	80-08-20	1110	29.0	.3	4
	81-09-16	1020	25.0	.8	10
OU16	80-08-20	1240	31.5	7.5	103
	81-09-16	1050	25.5	7.0	85
OU17	80-08-18	1330	30.0	7.6	101
	80-08-18	2325	29.0	7.3	95
	80-08-19	0540	29.0	6.9	90
	81-09-14	1600	27.0	7.2	91
	81-09-18	1045	24.5	6.9	83
	81-09-18	1745	25.0	7.0	85
	81-09-18	2250	24.0	7.0	83
	81-09-19	0710	23.0	7.1	83
OU19	80-08-18	1600	31.0	7.6	103
	80-08-18	2255	30.0	7.0	93
	80-08-19	0520	29.0	6.9	90
	81-09-14	1530	27.0	7.0	89
	81-09-15	0030	26.5	6.6	83
	81-09-15	0630	26.5	6.5	81
	81-09-19	1130	24.0	7.4	88
	81-09-19	1230	24.0	7.5	89
	81-09-19	1330	24.5	7.7	93
	81-09-19	1430	24.5	7.7	93
	81-09-19	1530	25.0	7.9	96
	81-09-19	1630	25.0	8.0	97
	81-09-19	1730	25.0	8.1	98
	81-09-19	1830	25.0	8.0	97
	81-09-19	1930	24.5	7.9	95
	81-09-19	2030	24.5	7.6	91
	81-09-19	2130	24.0	7.7	91
	81-09-19	2230	24.0	7.6	89
	81-09-19	2330	24.0	7.5	88

Table 35.--Lower Ouachita River temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OU20	80-08-18	1750	31.0	7.7	104
	80-08-18	2230	30.0	7.0	93
	80-08-19	0455	29.5	6.9	91
	81-09-14	1435	27.0	6.0	76
OU22	80-08-19	1400	32.0	7.2	99
	80-08-19	2320	30.0	7.6	101
	80-08-20	0515	30.0	7.2	96
	81-09-14	1045	27.0	6.1	77
	81-09-14	2300	27.0	5.9	75
	81-09-15	0515	26.5	5.6	70
SM36	80-08-21	1625	33.5	9.6	135
	81-09-15	0845	27.0	6.8	86
	81-09-15	1130	27.0	7.3	92
OU23	80-08-21	1700	33.0	9.9	139
	81-09-15	1145	27.0	5.9	75
OU25	80-08-18	1330	33.0	8.4	117
	80-08-18	2215	31.0	7.4	100
	80-08-19	0445	30.0	6.1	81
	81-09-15	1315	28.0	6.2	79
OU27	80-08-21	1740	34.0	10.2	146
	81-09-15	1200	27.0	6.0	76
	81-09-16	1700	27.0	5.6	71
	81-09-16	1800	27.0	5.7	72
	81-09-16	1900	27.0	5.9	74
	81-09-16	2000	27.0	5.9	74
	81-09-16	2100	27.0	5.9	74
	81-09-16	2200	27.0	5.9	74
	81-09-16	2300	27.0	5.9	74
	81-09-16	2400	27.0	5.9	74
	81-09-17	0100	26.5	5.9	74
	81-09-17	0200	26.5	6.0	75
	81-09-17	0300	26.5	6.0	75
	81-09-17	0400	26.5	6.0	75
	81-09-17	0500	26.0	6.0	74
	81-09-17	0600	26.0	6.0	74
	81-09-17	0700	26.0	6.1	75
	81-09-17	0800	26.0	6.1	75
	81-09-17	0900	26.0	6.1	75
	81-09-17	1000	26.0	6.2	77
	81-09-17	1100	26.5	6.3	79
	81-09-17	1200	26.5	6.4	80
	81-09-17	1300	27.0	6.4	82
	81-09-17	1400	27.0	6.5	82

Table 35.--Lower Ouachita River temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OU27	81-09-17	1500	27.0	6.5	82
	81-09-17	1600	27.0	6.5	82
	81-09-17	1700	27.0	6.5	82
OU29	80-08-18	1600	33.0	6.9	96
	80-08-18	2305	32.0	6.7	92
	80-08-19	0510	31.5	6.2	85
	80-08-19	1550	33.0	9.6	132
	80-09-16	1425	32.0	8.1	109
	80-10-14	1640	21.0	7.1	79
	80-11-18	1530	12.0	7.7	71
	81-01-27	1015	9.0	--	--
	81-02-24	0920	13.0	--	--
	81-03-24	0910	13.0	9.2	87
	81-04-21	0845	22.0	--	--
	81-07-21	0930	30.0	--	--
	81-08-18	0920	27.0	7.2	89
	81-09-08	0800	27.0	6.6	81
	81-09-14	2250	26.0	7.0	86
	81-09-15	0605	27.0	7.7	97
	81-09-15	1245	28.0	7.8	100
OU30T	80-08-22	1900	32.0	6.1	84
	81-09-14	2310	25.0	6.2	76
	81-09-15	0630	25.0	7.0	85
	81-09-17	1000	22.5	6.9	80
OU31	80-08-18	1630	33.0	7.3	101
	80-08-18	2145	32.0	6.6	90
	80-08-19	0630	31.0	6.5	88
	81-09-14	1510	27.5	6.8	86
	81-09-16	1630	27.5	7.0	89
	81-09-16	1730	27.5	6.8	86
	81-09-16	1830	27.0	6.8	86
	81-09-16	1930	27.0	6.8	86
	81-09-16	2030	27.0	6.8	86
	81-09-16	2130	27.0	6.8	86
	81-09-16	2230	27.0	6.8	86
	81-09-16	2330	27.0	6.8	86
	81-09-17	0030	26.5	6.8	85
	81-09-17	0130	26.5	6.8	85

Table 35.--Lower Ouachita River temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OU31	81-09-17	0230	26.5	6.9	86
	81-09-17	0330	26.5	6.9	86
	81-09-17	0430	26.5	6.9	86
	81-09-17	0530	26.5	6.9	86
	81-09-17	0630	26.5	6.9	86
	81-09-17	0730	26.0	6.9	85
	81-09-17	0830	26.0	6.9	85
	81-09-17	0930	26.0	6.9	85
	81-09-17	1030	26.0	7.0	87
	81-09-17	1130	26.0	7.0	87
	81-09-17	1230	26.0	6.9	85
	81-09-17	1330	26.0	7.0	87
	81-09-17	1430	26.5	7.2	90
	81-09-17	1530	26.5	7.1	89
	81-09-17	1630	26.5	7.1	89
OU32T	80-08-22	0840	29.0	3.0	39
	81-09-14	1830	23.0	9.8	114
OU33	80-08-18	1545	32.5	6.7	93
	80-08-18	2130	32.0	6.7	92
	80-08-19	0612	31.0	6.6	89
	81-09-14	1530	27.5	6.5	82
	81-09-14	2300	27.5	6.3	80
	81-09-15	0435	27.0	6.3	80
OU34	81-09-14	2345	27.0	6.9	87
	81-09-15	0705	27.0	6.8	86
	81-09-15	1430	27.5	7.1	90
OU35	80-08-22	1645	33.0	7.6	106
OU36T	80-08-22	1730	33.0	9.2	128
OU37	80-08-19	1630	34.0	9.8	140
	80-08-19	2330	32.0	6.5	89
	80-08-20	0530	31.5	5.9	81
	80-08-21	1000	31.5	5.8	79
	80-08-21	1100	32.0	6.0	82
	80-08-21	1200	33.0	7.2	100
	80-08-21	1300	33.0	7.2	100
	80-08-21	1400	34.0	8.1	116
	80-08-21	1500	34.5	8.8	126
	80-08-21	1600	35.0	9.2	133
	80-08-21	1700	35.0	9.5	138
	80-08-21	1800	34.5	9.6	137
	80-08-21	1900	34.0	9.2	131

Table 35.--Lower Ouachita River temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATUR-ATION) (00301)
OU37	80-08-22	0615	31.0	6.1	82
	80-08-22	0700	31.0	5.9	78
	80-08-22	0800	31.0	5.8	78
	80-08-22	0900	31.0	5.8	78
	81-09-15	1230	28.0	6.5	83
	81-09-15	1330	28.0	6.4	82
	81-09-15	1430	28.0	6.4	82
	81-09-15	1530	28.0	6.4	82
	81-09-15	1630	28.0	6.4	82
	81-09-15	1730	28.0	6.3	81
	81-09-15	1830	28.0	6.4	82
	81-09-15	1930	28.0	6.2	79
	81-09-15	2030	28.0	6.1	78
	81-09-15	2130	28.0	6.1	78
	81-09-15	2230	27.5	6.1	78
	81-09-15	2330	27.5	6.1	78
	81-09-15	2400	27.5	5.7	72
	81-09-16	0030	27.5	6.1	78
	81-09-16	0130	27.5	6.0	76
	81-09-16	0230	27.5	6.0	76
	81-09-16	0330	27.5	5.9	75
	81-09-16	0430	27.0	5.9	74
	81-09-16	0530	27.0	5.9	74
	81-09-16	0630	27.0	5.8	73
	81-09-16	0730	27.0	5.8	73
	81-09-16	0830	27.0	5.8	73
	81-09-16	0930	27.0	5.8	73
	81-09-16	1030	27.0	5.9	74
	81-09-16	1130	27.5	6.1	78
	81-09-16	1230	27.5	6.2	79
	81-09-16	1330	28.0	6.4	79
OU39T	81-09-14	1715	25.0	2.7	33
	81-09-15	0030	25.0	3.1	38
	81-09-15	0615	25.0	2.6	32
OU40	80-08-19	1530	32.0	7.1	97
	80-08-19	2250	31.5	6.6	90
	80-08-20	0455	31.5	7.0	96
	81-09-19	1400	24.0	8.1	96

Table 35.--Lower Ouachita River temperature and dissolved oxygen data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OU41	80-09-16	1305	31.0	8.4	112
	80-10-07	1310	19.0	6.5	69
	80-11-04	1300	17.0	8.8	91
	80-12-09	0945	12.0	10.1	94
	81-03-03	0800	14.0	—	—
	81-03-17	0830	13.0	9.2	87
	81-04-07	0830	17.0	7.4	76
	81-05-12	0830	20.0	8.0	87
	81-07-07	0830	24.0	6.6	78
	81-08-04	0815	26.0	5.5	67
	81-09-08	0820	28.0	7.2	91
	81-09-15	0700	27.0	6.7	85
	81-09-15	1330	28.0	6.0	77
	81-09-15	1430	28.0	6.2	79
	81-09-15	1530	28.0	6.2	79
	81-09-15	1630	28.0	6.4	82
	81-09-15	1730	28.5	6.6	85
	81-09-15	1830	28.0	6.3	81
	81-09-15	1930	28.0	6.0	77
	81-09-15	2030	27.5	5.8	74
	81-09-15	2130	27.5	5.8	74
	81-09-15	2230	27.0	5.7	72
	81-09-15	2330	27.0	5.6	71
	81-09-16	0030	27.0	5.5	69
	81-09-16	0130	27.0	5.6	71
	81-09-16	0230	27.0	5.6	71
	81-09-16	0330	27.0	5.6	71
	81-09-16	0430	27.0	5.6	71
	81-09-16	0530	27.0	5.6	71
	81-09-16	0630	27.0	5.5	69
	81-09-16	0730	27.0	5.6	71
	81-09-16	0830	27.0	5.6	71
	81-09-16	0930	27.0	5.6	71
	81-09-16	1030	27.0	5.4	68
	81-09-16	1130	27.5	5.7	72
	81-09-16	1230	27.5	5.9	76
	81-09-16	1330	27.5	6.2	79

Table 36.--Lower Ouachita River biological data

[Five digit numbers in parentheses are STORET parameter codes used for computer storage of data, COLS. = colonies, 0.7 UM-MF = 0.7 micron membrane filter, K = plate count was outside ideal range]

SITE NUMBER	DATE OF SAMPLE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT (G/M2) (00572)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT (G/M2) (00573)	CHLOR-A PERI-PHYTON CHROMO GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
OU41	81-09-19	1445	16.3	21.5	24.1	12.5	215

Table 36.--Lower Ouachita River biological data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	PHYTO-PLANKTON, TOTAL (CELLS /ML)	CHLOR-A PHYTO-PLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANKTON CHROMO FLUOROM (UG/L) (70954)	COLIFORM, TOTAL, IMMED. (COLS./ 100 ML)	COLIFORM FECAL, 0.7 UM-MF (COLS./ 100 ML)
OU1	80-08-18	1315	--	--	--	80	K40
	81-09-14	1050	--	--	--	150	60
OU2T	80-08-18	1245	--	--	--	480	K27
	81-09-14	1205	--	--	--	K86	28
OU3	80-08-18	1205	--	--	--	76	45
	81-09-14	1320	390	2.34	0.480	K93	44
OU5	80-08-18	1720	--	--	--	K850	K57
	81-09-14	1700	140	1.43	.490	K65	32
OU6T	80-08-18	1600	--	--	--	150	K20
	81-09-14	1550	--	--	--	K950	K390
OU7	80-08-19	1300	--	--	--	840	6
	81-09-15	1220	990	.500	.010	K60	22
OU8T	80-08-18	1645	--	--	--	K830	K60
	81-09-14	1855	--	--	--	1100	K240
OU9	80-08-19	1530	--	--	--	1000	12
	81-09-15	1105	--	--	--	200	K54
OU10T	81-09-15	0900	--	--	--	--	K660
OU11	80-09-04	1230	990	--	--	--	2
	80-10-15	1300	--	--	--	--	120
	80-11-20	1400	--	--	--	--	K80
	80-12-11	1200	--	--	--	--	K940
	81-01-14	1130	--	--	--	--	K10
	81-02-10	1200	--	--	--	--	K35
	81-03-12	1200	150	--	--	--	19
	81-04-08	1300	--	--	--	--	6
	81-05-06	0930	52	--	--	--	10
	81-06-11	1000	140	--	--	--	K40
	81-07-09	0915	850	--	--	--	K340
	81-08-05	1115	530	--	--	--	<3
	81-09-02	1100	--	--	--	--	K17
	81-09-16	1225	--	--	--	K80	15
OU12T	80-08-19	1415	--	--	--	K8	46
	81-09-16	1210	--	--	--	K750	120
OU13	80-08-18	1130	--	--	--	270	K53
	81-09-15	1605	--	--	--	170	56
OU14T	81-09-16	0850	--	--	--	K20	<1
OU15	80-08-20	0950	--	--	--	K50	6
	81-09-16	0945	--	--	--	29	27
TB10	80-08-20	1110	--	--	--	K600	K13
	81-09-16	1020	--	--	--	--	K2000

Table 36.--Lower Ouachita River biological data--Continued

SITE NUMBER	DATE OF SAMPLE	TIME	PHYTO-PLANK-TON, TOTAL (CELLS /ML)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	COLI-FORM, TOTAL, IMMED. (COLS./ 100 ML)	COLI-FORM FECAL, 0.7 UM-MF (COLS./ 100 ML)
OU16	80-08-20	1240	--	--	--	K25	2
	81-09-16	1050	8400	--	--	200	2
OU17	80-08-18	1330	--	--	--	350	10
	81-09-14	1600	2800	0.510	<0.010	K770	K250
OU19	80-08-18	1600	--	--	--	120	3
	81-09-14	1530	820	--	--	K93	17
OU20	80-08-18	1750	--	--	--	150	12
	81-09-14	1435	--	1.68	.560	K27	16
OU22	80-08-19	1400	--	--	--	700	4
	81-09-14	1045	--	--	--	1200	35
SM36	81-09-15	1130	--	--	--	170	280
OU23	80-08-21	1700	--	--	--	K120	26
	81-09-15	1145	--	--	--	35	18
OU25	80-08-18	1330	--	--	--	K1400	30
	81-09-15	1315	560	4.90	1.43	130	49
OU27	80-08-21	1740	--	--	--	K50	8
	81-09-15	1200	--	--	--	37	21
OU29	80-08-18	1600	--	--	--	360	6
	81-09-15	1245	--	--	--	K93	34
OU30T	80-08-22	1900	--	--	--	36	<1
	81-09-17	1000	--	--	--	<1	<1
OU31	80-08-18	1630	--	--	--	160	7
	81-09-14	1510	--	6.90	1.55	K17	4
OU32T	80-08-22	0840	--	--	--	K2400	48
	81-09-14	1830	--	--	--	K25	1
OU33	80-08-18	1545	--	--	--	120	16
	81-09-14	1530	230	3.98	1.69	K9	12
OU34	80-08-18	1800	--	--	--	500	67
	81-09-15	1430	--	--	--	110	26
OU35	80-08-22	1645	--	--	--	K4800	10
	81-09-14	1400	--	--	--	K38	11
OU36T	80-08-22	1730	--	--	--	K2200	3
	81-09-14	1415	--	--	--	K44	4
OU37	80-08-19	1630	--	--	--	680	110
	81-09-15	2400	--	2.36	1.24	360	K250
OU39T	81-09-14	1715	--	--	--	K93	130
OU40	80-08-19	1530	--	--	--	1600	110
	81-09-19	1400	--	--	--	K50	10
OU41	80-08-19	1445	--	--	--	K3000	140
	81-09-15	0700	--	2.84	.680	480	--

Table 37.--Phytoplankton taxonomy and densities for lower Ouachita River

Scientific name	Common name	cells/milliliter			
		OU3 81-09-14	OU5 81-09-14	OU7 81-09-15	OU16 81-09-16
Chlorophyta	Green algae				
.Chlorophyceae					
..Chlorococcales					
...Oocystaceae					
....*Ankistrodesmus*		---	[a]29	14	28
....*Chodatella*		---	---	14	28
....*Gloeoactinium*		---	---	140	---
....*Kirchneriella*		---	---	28	14
...Scenedesmaceae					
....*Crucigenia*		---	---	---	56
....*Scenedesmus*		[a]140	[a]110	[a]280	170
..Volvocales					
...Chlamydomonadaceae					
....*Chlamydomas*		---	---	---	42
Chrysophyta	Yellow-green algae				
.Bacillariophyceae	Diatoms				
..Centrales	Centric diatoms				
...Coscinodisaceae					
....*Cyclotella*		43	---	56	180
....*Melosira*		[a]58	---	---	14
..Pennales	Pennate diatoms				
...Achnanthaceae					
....*Achnanthes*		---	---	---	14
...Cymbellaceae					
....*Cymbella*		14	---	---	---
...Naviculaceae	Naviculoids				
....*Gyrosigma*		14	---	---	---
....*Navicula*		[a]86	---	---	---
...Nitzschiaceae					
....*Nitzschia*		29	---	42	42
...Surirellaceae					
....*Surirella*		---	---	14	14
Cyanophyta	Blue-green algae				
.Cyanophyceae					
..Chroococcales	Coccoid blue-greens				
...Chroococcaceae					
....*Anacystis*		---	---	[a]270	220
...Oscillatoriaceae					
....*Oscillatoria*		---	---	140	[a]7,500

Table 37.--Phytoplankton taxonomy and densities for lower Ouachita River--Continued

Scientific name	Common name	cells/milliliter OU17 81-09-14	 OU19 81-09-14	 OU25 81-09-15
Chlorophyta	Green algae			
.Chlorophyceae				
..Chlorococcales				
...Coelastraceae				
....*Coelastrum*		110	---	---
...Oocystaceae				
....*Dictyosphaerium*		---	29	---
...Scenedesmaceae				
....*Scenedesmus*		29	86	---
Chrysophyta	Yellow-green algae			
.Bacillariophyceae	Diatoms			
..Centrales	Centric diatoms			
...Coscinodiscaceae				
....*Cyclotella*		---	43	[a]160
..Pennales	Pennate diatoms			
...Naviculaceae	Naviculoids			
....*Navicula*		29	43	---
Cyanophyta	Blue-green algae			
.Cyanophyceae				
..Chroococcales	Coccoid blue-greens			
...Chroococcacea				
....*Agmenellum*		230	---	---
....*Anacystis*		---	[a]620	---
..Hormogonales	Filamentous blue-greens			
...Oscillatoriaceae				
....*Oscillatoria*		[a]2,400	---	[a]350
Euglenophyta	Euglenoids			
.Euglenophyceae				
..Euglenales				
...Euglenaceae				
....*Trachelomonas*		29	---	---

[a] Dominant organism, cell counts greater than or equal to 15 percent of total count for the site.

Table 38.--Periphyton taxa for lower Ouachita River (Site OU41)

[Sampling strip collected 81-09-19]

Scientific name	Common name
Chlorophyta	Green algae
.Chlorophyceae	
..Chlorococcales	
...Characiaceae	
....*Characium*	
..Oedogoniales	
...Oedogoniaceae	
....*Oedogonium*	
..Tetrasporales	
...Palmellaceae	
....*Askenasyella*	
..Ulotrichales	
...Chaetophoraceae	
....*Stigeoclonium*	
...Ulotrichaceae	
....*Ulothrix*	
..Volvocales	
...Chlamydomonadaceae	
....*Chlamydomonas*	
..Zygnematales	
...Desmidiaceae	Placoderm desmids
....*Cosmarium*	
Chrysophyta	Yellow-green algae
.Bacillariophyceae	Diatoms
..Pennales	Pennate diatoms
...Cymbellaceae	
....*Cymbella*	
...Fragilariaceae	
....*Fragilaria*	
...*Synedra*	
...Gomphonemataceae	
....*Gomphonema*	
...Naviculaceae	Naviculoids
....*Navicula*	
...Nitzschiaceae	
....*Nitzschia*	

Table 38.--Periphyton taxa for lower Ouachita River (Site OU41)--Continued

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Scientific name	Common name
Cyanophyta	Blue-green algae
.Cyanophyceae	
..Hormogonales	Filamentous blue-greens
...Oscillatoriaceae	
....*Lyngbya* [1]	
....*Oscillatoria* [1]	
Euglenophyta	Euglenoids
.Euglenophyceae	
..Euglenales	
...Euglenaceae	
....*Trachelomonas*	

---

[1] Indicates a dominant organism, estimated to be greater than 15 percent of total algal cells on sampling strip

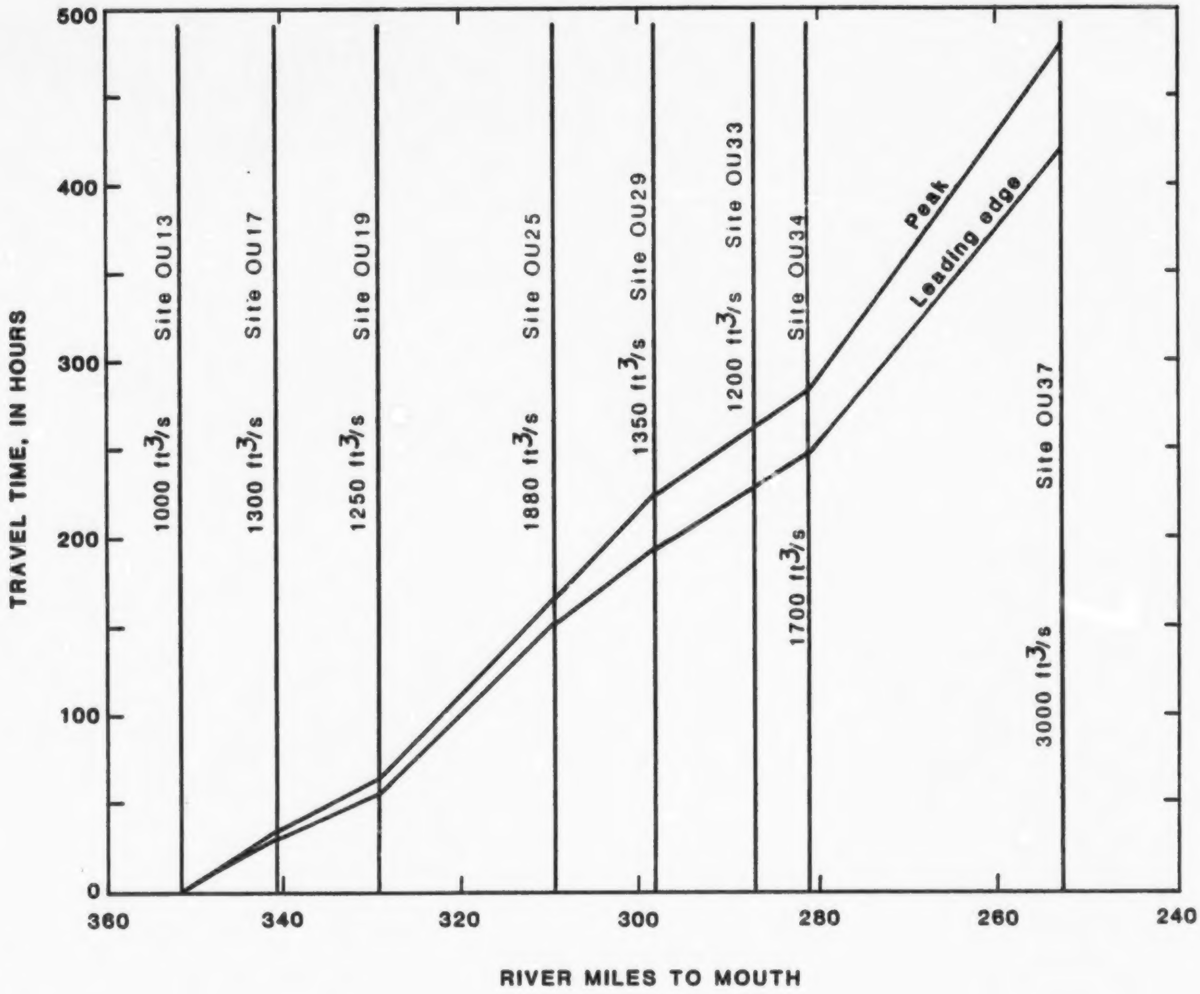

Figure 14.--Traveltime of tracer cloud in Ouachita River, river mile 351.1 to 252.9 for normal summertime variable flow of 1000 to 3000 ft^3/s. Flow at time of tracer cloud passage shown for each site. (Modified from Lamb, 1983).

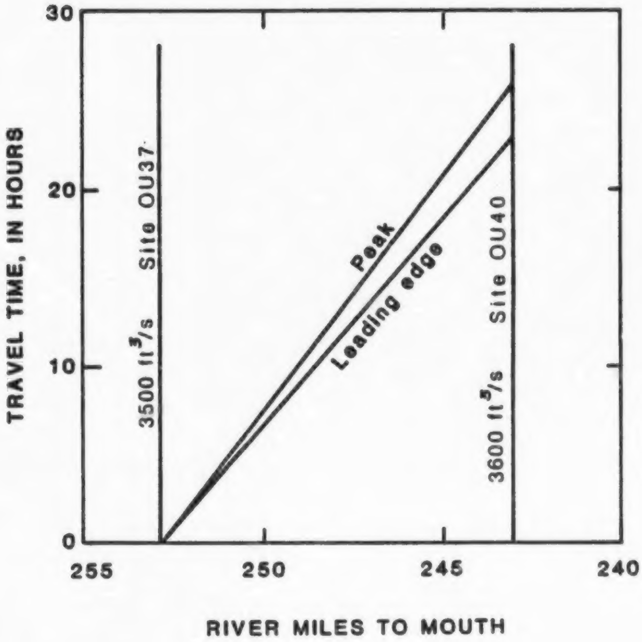

Figure 15.--Traveltime of tracer cloud in Ouachita River, mile 252.9 to 243.0, for discharges noted at each site. (Modified from Lamb, 1983).

Table 39.--Lower Ouachita River cross-section data

River mile	Date	Width (feet)	Average depth (feet)
379.8	81-09-14	200	8.0
378.2	80-08-18	296	6.7
375.5	80-08-18	271	2.8
373.8	80-08-18	300	5.8
371.8	80-08-18	293	4.9
370.3	80-08-18	220	6.2
365.0	80-08-19	243	2.2
362.6	80-08-19	225	6.0
362.6	81-09-15	310	8.2
358.6	80-08-19	180	5.9
358.6	81-09-15	190	3.0
355.3	80-08-19	210	8.8
355.1	80-08-19	210	6.9
351.2	80-08-18	200	---
351.0	81-09-15	250	8.0
349.5	80-08-20	110	10.1
347.2	81-09-16	260	7.0
347.1	80-08-20	260	7.6
345.6	80-08-20	300	16.3
342.1	80-08-20	260	7.7
340.6	80-08-18	220	11.0
338.3	80-08-20	240	7.4
332.2	80-08-20	220	8.4
330.4	80-08-18	285	15.5
329.4	80-08-20	240	17.0
324.6	80-08-21	280	15.9
323.3	80-08-21	360	19.7
322.0	80-08-18	280	---
317.3	80-08-19	283	20.0
312.1	80-08-21	270	16.2
308.6	80-08-21	250	21.0
306.3	80-08-21	300	14.8
303.0	80-08-21	295	17.3
299.5	80-08-22	315	16.9
290.9	80-08-22	300	16.1
284.1	80-08-21	220	9.7
264.6	80-08-22	220	23.9
247.9	80-08-22	315	17.9
244.5	80-08-22	315	16.8

Table 40.--Reaeration rate coefficients for selected reaches of lower Ouachita River

Stream reach		$k_{2_{20}}$ Reaeration rate coefficient per day at 20 deg C	Average flow during tracer sampling period (cubic feet per second)	River mile of flow measurement sites
Begin mile	End mile			
335.4	332.4	0.43	976	329.4
332.4	329.4	.47	976	329.4
335.4	329.4	.45	976	329.4
[a]298.5	[b]298.25	54	1,110	298.25

[a] upstream from Lock and Dam 8.
[b] downstream from Lock and Dam 8.

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